Magelis
XBT GT, XBT GK
User Manual

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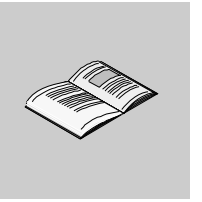

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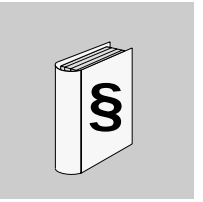
Safety Information



NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result** in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, **can result** in death, serious injury, or equipment damage.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation, which, if not avoided, **can result** in injury or equipment damage.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

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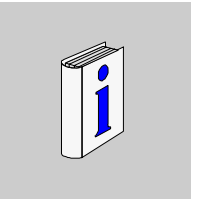
About the Book



At a Glance

Document Scope

This manual describes how to use the Magelis XBT GT and XBT GK devices.

Validity Note

The data and illustrations found in this book are not binding. We reserve the right to modify our products in line with our policy of continuous product development. The information in this document is subject to change without notice and should not be construed as a commitment by Schneider Electric.

Product Related Warnings

Schneider Electric assumes no responsibility for any errors that may appear in this document. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us. No part of this document may be reproduced in any form or by any means, electronic or mechanical, including photocopying, without the express written permission of Schneider Electric. All rights reserved.

All pertinent state, regional and local safety regulations must be observed when installing and using this product. For reasons of safety and to assure compliance with documented system data, only the manufacturer should perform repairs to components.

User Comments

We welcome your comments about this document. You can reach us by e-mail at techpub@schneider-electric.com

XBT GT and XBT GK Panels

I

At a Glance

Overview

This part presents XBT GT and XBT GK Panels.

What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
1	XBT GT and XBT GK Panels	13
2	Device Connectivity	21
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4	Installation and Wiring	137

XBT GT and XBT GK Panels

1

At a Glance

Overview

This chapter presents series of XBT GT and XBT GK Panels and connectable devices.

What's in this Chapter?

This chapter contains the following topics:

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XBT GT and GK Series of Panels	14
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XBT GT and GK Series of Panels

Introduction

The following presents the XBT GT touchscreen and XBT GK keypad series of human-machine interface (HMI) products. These products have an operating voltage of 24 VDC. The products offered in this series have various features and benefits listed below:

- Screen size
- Screen resolution
- Screen technology and color
- Communication ports

XBT GT Part Numbers

The following table presents the different XBT GT products:

Part number	Screen size	Pixel resolution	Mono/Color	Screen technology	Video port	Ethernet port
XBT GT1100	9,6 cm (3.8 in)	QVGA	Amber	STN	No	No
XBT GT1105	9,6 cm (3.8 in)	QVGA	Amber	STN	No	No
XBT GT1130	9,6 cm (3.8 in)	QVGA	Amber	STN	No	Yes
XBT GT1135	9,6 cm (3.8 in)	QVGA	Amber	STN	No	Yes
XBT GT1335	9,6 cm (3.8 in)	QVGA	Color	TFT	No	Yes
XBT GT2110	14,4 cm (5.7 in)	QVGA	Blue Mode	STN	No	No
XBT GT2120	14,4 cm (5.7 in)	QVGA	Monochrome	STN	No	No
XBT GT2130	14,4 cm (5.7 in)	QVGA	Monochrome	STN	No	Yes
XBT GT2220	14,4 cm (5.7 in)	QVGA	Color	STN	No	No
XBT GT2330	14,4 cm (5.7 in)	QVGA	Color	TFT	No	Yes
XBT GT4230	19,1 cm (7.5 in)	VGA	Color	STN	No	Yes
XBT GT4330	19,1 cm (7.5 in)	VGA	Color	TFT	No	Yes
XBT GT4340	19,1 cm (7.5 in)	VGA	Color	TFT	Yes	Yes
XBT GT5230	26,4 cm (10.4 in)	VGA	Color	STN	No	Yes
XBT GT5330	26,4 cm (10.4 in)	VGA	Color	TFT	No	Yes
XBT GT5340	26,4 cm (10.4 in)	VGA	Color	TFT	Yes	Yes
XBT GT6330	30,7 cm (12.1 in)	SVGA	Color	TFT	No	Yes
XBT GT6340	30,7 cm (12.1 in)	SVGA	Color	TFT	Yes	Yes
XBT GT7340	38,1 cm (15.0 in)	XGA	Color	TFT	Yes	Yes

- STN: scan twisted pneumatic, also known as passive matrix.
- TFT: thin film transistors, also known as active matrix.

XBT GK Part Numbers

The following table presents the different XBT GK products:

Part number	Screen size	Pixel resolution	Mono/Color	Screen technology	Video port	Ethernet port
XBT GK2120	14,4 cm (5.7 in)	QVGA	Monochrome	STN	No	No
XBT GK2330	14,4 cm (5.7 in)	QVGA	Color	TFT	No	Yes
XBT GK5330	26,4 cm (10.4 in)	VGA	Color	TFT	No	Yes

- STN: Scan Twisted Nematic also known as passive matrix.
- TFT: Thin Film Transistors also known as active matrix.

Critical systems, alarms and handling Requirements

Critical alarm indicators and system functions require independent and redundant protection hardware and/or mechanical interlocks.

When you cycle power, wait at least 10 seconds before restoring the power to the HMI unit after it has been turned off. Switching the power OFF and ON quickly can damage the unit.

In the event of backlight or other unit failure, it may be difficult or impossible to identify a function. Functions that may present a hazard if not immediately executed, such as emergency stop, must be provided independently of the unit. The machine's control system design must take into account the possibility of the backlight failing and the operator being unable to control the machine or making errors in the control of the machine.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use the unit as the only means of control for critical system functions such as motor start/stop or power disconnect
- Do not use the unit as the only notification device for critical alarms, such as device overheating or overcurrent

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Handling the LCD panel

The following characteristics are specific to the LCD unit and are considered normal behavior:

- LCD screen may show unevenness in the brightness of certain images or may appear different when seen from outside the specified viewing angle. Extended shadows, or crosstalk may also appear on the sides of screen images.
- LCD screen pixels may contain black and white colored spots and color display may seem to have changed.
- When the same image is displayed on the unit's screen for a long period, an afterimage may appear when the image is changed. If this happens, turn OFF the unit, wait 10 sec and then restart the unit.

Note: Change the screen image periodically and try not to display the same image for a long period of time.

⚠ CAUTION

SERIOUS EYE AND SKIN INJURY

The LCD panel's liquid contains an irritant. Avoid direct skin contact with the liquid.

- Wear gloves when you handle a broken or leaking unit.
- Do not use sharp objects or tools in the vicinity of the LCD touch panel or to operate its buttons.
- Handle the LCD panel carefully to prevent puncture, bursting, or cracking of the panel material.

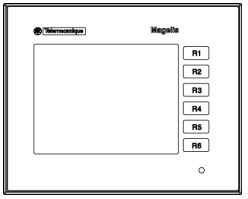
If the panel is damaged and any liquid comes in contact with your skin, immediately rinse the area with running water for at least 15 min. If the liquid gets in your eyes, immediately rinse your eyes with running water for at least 15 min and consult a doctor.

Failure to follow these instructions can result in injury or equipment damage.

Package Contents

Make sure all items listed here are present in your unit's package:

1a



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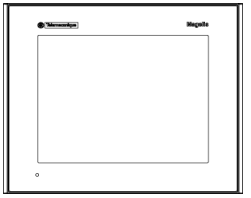

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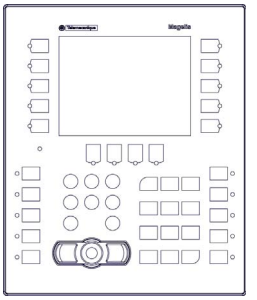

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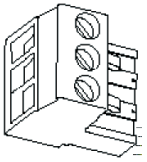

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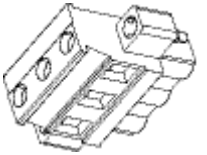

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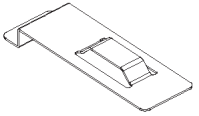

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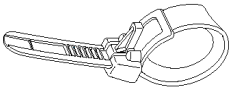

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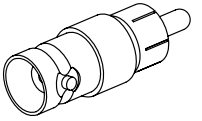

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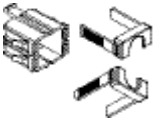

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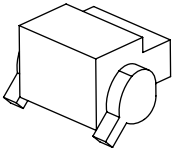

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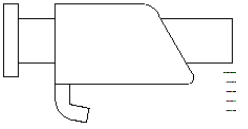

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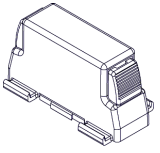


12

13

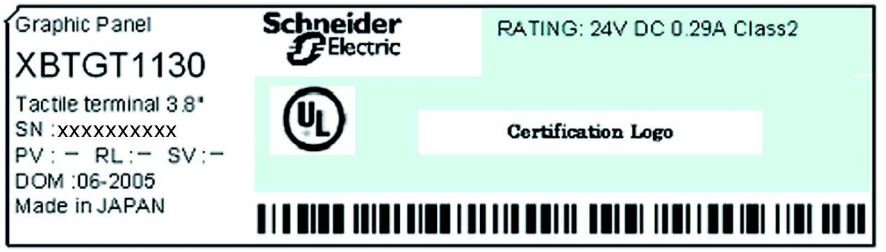
Quick Reference Guide

1a or 1 b or 1c Human Machine Interface
2 Installation Gasket
3 Power Plug (for XBT GT1000/1005/2000/4000 series, XBT GK2000 series)
4 Power Plug (for XBT GT5000/6000/7000 series, XBT GK5000 series)
5a USB Holder (for XBT GT2000 series)
5b USB Holder (for XBT GK series)
6 USB Cable Clamp (for XBT GT2000 series, XBT GK series)
7 RCA-BNC Convertor (for XBT GT4340/5340/6340/7340)
8 USB Holder, 1 set (for XBT GT1005/4000/5000/6000/7000 series)
9 AUX Connector (for XBT GT4000/5000/6000/7000 series, XBT GK5000 series)
10 Screw installation fasteners (XBT GT1005/2000/4000/5000/6000 series: x4, XBT GT7000 series: x8, XBT GK series: none)
11 Spring Clip (for XBT GK2000 series: x10, XBT GK5000 series: x12)
12 "Insert Labels" set (for XBT GK series: contains 2 sets of premarked labels and 4 blank labels)
13 Quick Reference Installation guide

Revision

You can identify the product version (PV), revision level (RL), and the software version (SV) from the product label sticker pasted on the unit.

The following diagram show a typical representation of label sticker:



UL and CSA Conformity

Introduction

The XBT GT and XBT GK series of panels are cULus listed and CSA certified.

The XBT GT and XBT GK series have been developed to conform with the following standards:

- IEC/EN 61131-2 Programmable controllers
- UL 508 for Industrial Control Equipment
- UL 1604 Electrical Equipment for Use in Class I and Class II Division 2 and Class III Hazardous Locations, except XBT GT series 1005 and the XBT GK series
- UL 60950 Standard for Safety of Information Technology Equipment,
- CAN/CSA-C22.2, No.14, No.213, and No. 60950 Industrial Control Equipment Miscellaneous Apparatus - For Hazardous Locations.
- CISPR 11
- UL50/NEMA 250 4X, indoor use only
- EN 60079-15 and IEC 61241-1 for XBT GT series only

UL 1604 Conditions of Acceptability and Handling Cautions

The XBT GT series (except the XBT GT 1005 series) has been designed to operate in hazardous locations in accordance with Class 1, Division 2 standards. All relevant local, state, and regional codes must be followed.

⚠ DANGER

EXPLOSION

- Compatibility: Power, input and output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods
- Do not perform substitution of components that may impair compliance to Class I, Division 2.
- Confirm that the location is not subject to any risk of explosion before connecting or disconnecting equipment, replacing or wiring modules.
- Confirm that the externally connected unit and each interface (COM1, COM2, EXT1, EXT2, CF Card, AUX) and the CF Card Cover and the AUX Connector have been securely locked.
- Confirm that the power supply has been turned OFF before disconnecting, replacing or wiring modules.
- Before turning ON, sweep front panel with a damp cloth.

Failure to follow these instructions will result in death or serious injury.

CE Marking Notes

Introduction

The units are CE marked, EMC compliant products.

These units also conform to EN55011 Class A, EN61000-6-2 directives. For detailed CE marking information, contact your local distributor.

Environment	Standards
Compliance with standards	IEC 61131-2, IEC61000-6-2, CISPR11(Class A), UL 508, UL1604, CSA C22.2 no. 14 and 213
Product certification	CE, cULus, CSA, UL Class 1 Div 2 T4A or T5
Operating temperature	0 °C + 50 °C (32 °F 122 °F)
Storage temperature	-20 °C + 60 °C (-4 °F 140 °F)
Protection (front panel)	IP 65 - (IEC 60529) Enclosure type, 4X indoor use with screw installation fasteners only for XBT GT series and with spring clips fasteners only for XBT GK series.
Protection (rear panel)	IP 20 - (IEC 60529)
ESD withstand	IEC 61000 - 4 - 2, IEC61131- 2 4 kV contact, 8 kV air
Radiated radio frequency electromagnetic field	IEC 61000 - 4 - 3, IEC61131- 2 10 V / m
Electrical fast transient burst	IEC 61000- 4 - 4, IEC 61131- 2 2 kV (power supply and I/O) 1 kV other ports
High Energy Surges	IEC 61000 - 4 - 5 1 kV (Differential Mode on power supply) 2 kV (Common Mode on power supply)
Shocks	IEC 60068 - 2 - 27 1/2 sinusoidal pulse for 11 ms, 15 g on 3 axes
Vibration Immunity	IEC 60068 - 2 - 6 3.5 mm 5 to 9 Hz 1 g. 9 to 150 Hz
Pollution Degree	2

Device Connectivity

2

At a Glance

Introduction

This chapter presents the equipment connectable to each XBT GT and XBT GK unit.

What's in this Chapter?

This chapter contains the following topics:

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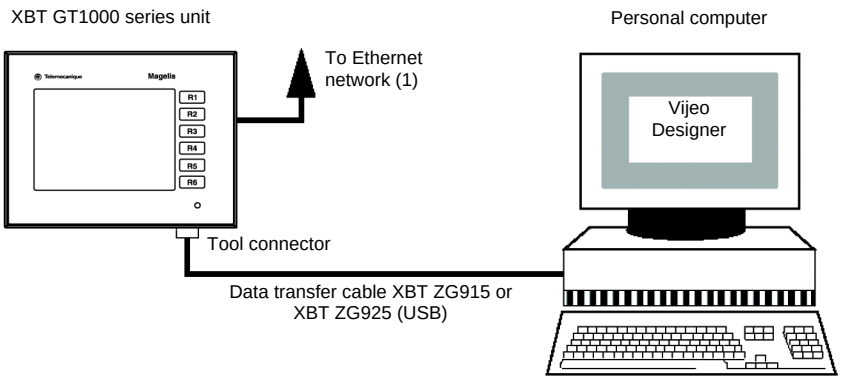
System Design	22
Accessories	26

System Design

Introduction

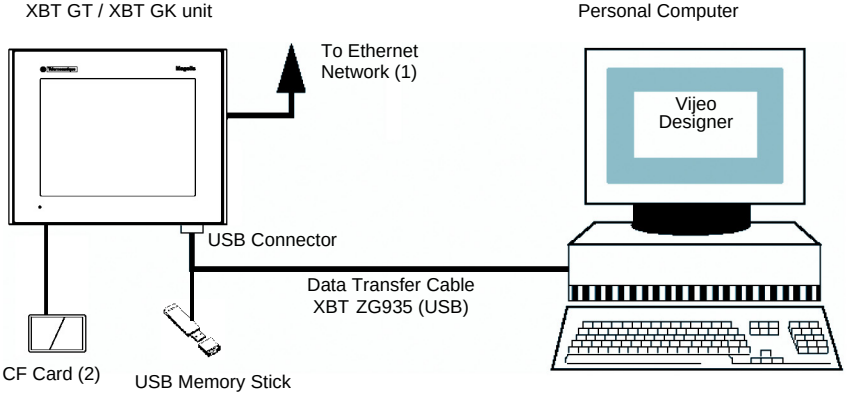
The following diagrams represent the main selection of equipment connectable to the units.

XBT GT1000 Series Edit Mode Peripherals



(1) Not available on XBT GT1100

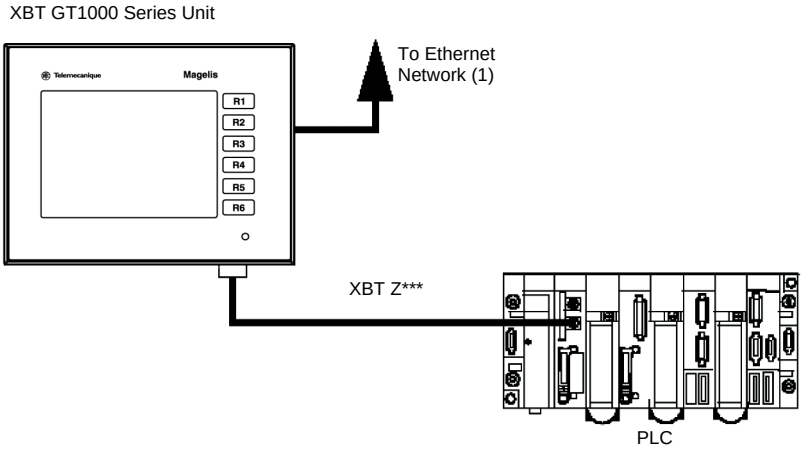
XBT GT1005/ 2000/4000/5000/ 6000/7000 Series and XBT GK2000/ 5000 Series Edit Mode Peripherals



(1) Not available on XBT GT1105/2110/2120/2220 and XBT GK2120

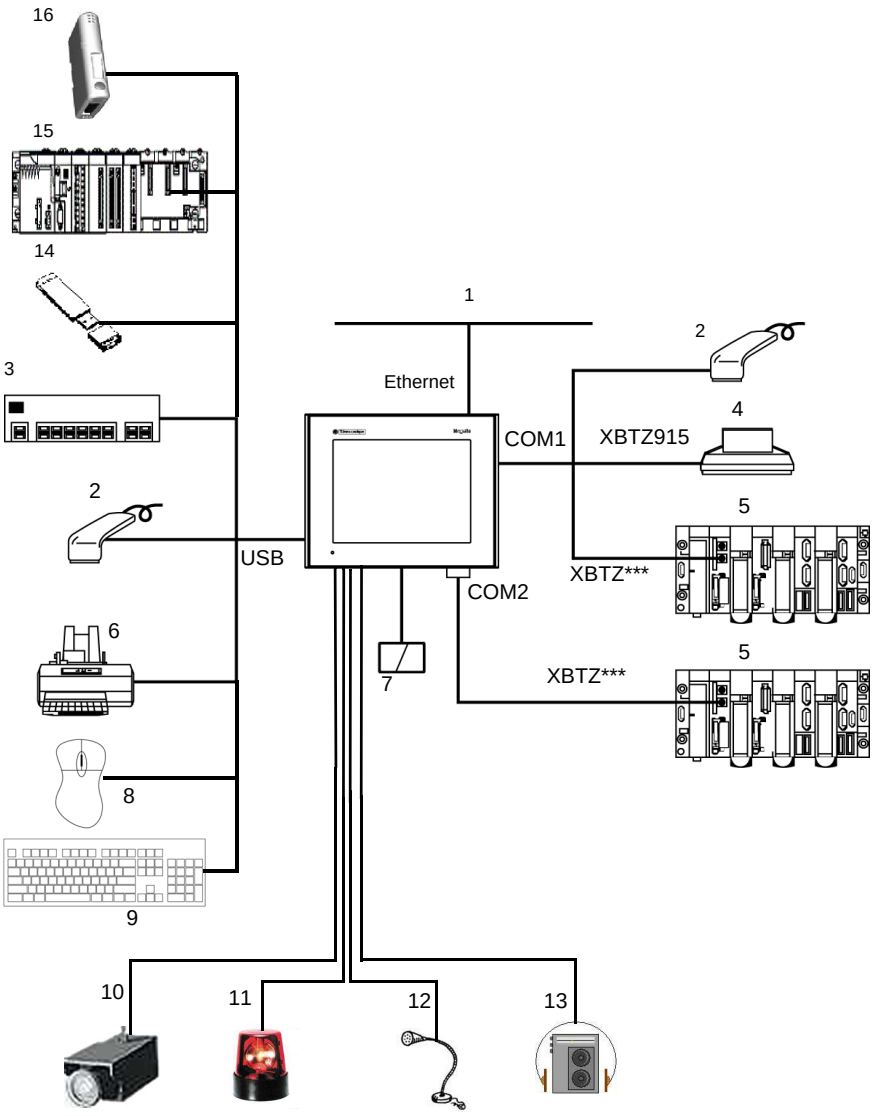
(2) Not available on XBT GT1105/1135/1335/2110

XBT GT1000 Series Run Mode Peripherals



(1) Not available on XBT GT1100

XBT GT1005/ 2000/4000/5000/ 6000/7000 and XBT GK2000/ 5000 Series Run Mode Peripherals



1 Ethernet network connection (not available on XBT GT1105/2110/2120/2220 and XBT GK2120)
2 Serial bar code reader (validated with Gryphon range of Datalogic)
3 USB hub (commercial type)
4 Serial printer
5 PLC
6 Parallel printer (printer function validated with EPSON and HP models; details available on Vijeo Designer documentation)
7 CF Card (not available on XBT GT1105/1135/1335/2110)
8 USB Mouse
9 USB Keyboard
10 Camera (available on XBT GTxx40 products only, and VijeoDesigner Version higher than V4.3)
11 Flashing light (not available on XBT GT1005/2000 series, and XBT GK2000 series)
12 Microphone (available on XBT GTxx40 products only, and VijeoDesigner Version higher than V4.3)
13 Speaker (not available on XBT GT1005/2000 series, and XBT GK2000 series)
14 USB Memory Stick)
15 PLC with USB Terminal port (Modicon M340)
16 Communication Gateway (Modbus Plus or Fipio)

Accessories

Serial Interface Items

Product Number	Product name	Description	XBT GT/GK series
XBT Z915	Cable	Connects COM1 port to a serial printer.	All XBT GK models, XBT GT2000 and higher
XBT Z9780	XBT Z cable	Connects COM1 on XBT GT1000/1005 series and COM2 on XBT GK and XBT GT2000 and higher series to Premium, Micro, Twido PLC	All
XBT Z9980	XBT Z cable	Connects COM1 on XBT GT1000/1005 series and COM2 on XBT GK and XBT GT2000 and higher series to Modicon M340	All
VW3A8306	XBT Z cable	Connects COM1 on XBT GT1000/1005 series and COM2 on XBT GK and XBT GT2000 and higher series to derivation box TSXSCA62	All
VW3A8306R10	XBT Z cable	Connects COM1 on XBT GT1000/1005 series and COM2 on XBT GK and XBT GT2000 and higher series to ATV Drives or to Hub LU9GC3 or to Fieldbus Tap TWDXCAT3RJ, TWDXCAISO	All
STBXCA4002	XBT Z cable	Connects COM1 port to Advantys STB	All XBT GK models, XBT GT2000 and higher
TSXPCX1031	XBT Z cable	Connects COM1 port to Premium, Micro, Twido	All XBT GK models, XBT GT2000 and higher
XBT ZG909	XBT Z adapter	Cable adapter COM1 D-Sub9 RS485	All XBT GK models, XBT GT2000 and higher
XBT ZG919	XBT Z adapter	Cable adapter COM1 D-Sub9 RS232	All XBT GK models, XBT GT2000 and higher
XBT ZG939	XBT Z adapter	Cable adapter COM1 RJ45	XBT GT1000/1005
XBT Z968 XBT Z9680 XBT Z9681	XBT Z cable	Connects COM1 port with XBTZ adapter to Premium, Micro, Twido PLC	All
XBT Z9710	XBT Z cable	Connects COM1 port with XBTZ adapter to Quantum PLC	All
XBT Z9711	XBT Z cable	Connects COM1 port with XBTZ adapter to Momentum PLC	All
XBT Z908	XBT Z cable	Connects COM1 port with XBTZ adapter to derivation box TSXSCA62	All XBT GK models, XBT GT2000 and higher

Product Number	Product name	Description	XBT GT/GK series
XBT Z938	XBT Z cable	Connects COM1 port with XBTZ adapter to ATV drives or to Hub LU9GC3 or to Fieldbus Tap TWDXCAT3RJ, TWDXCAISO	All XBT GK models, XBT GT2000 and higher
XBT Z918	XBT Z cable	Connects COM1 port with XBTZ adapter to Premium SCY	All
XBT Z988	XBT Z cable	Connects COM1 port with XBTZ adapter to Advantys STB	All
XBT ZGI232	XBT Z isolation	Connects COM1 port to an equipment and provide isolation	All XBT GK models, XBT GT2000 and higher
XBT ZGI485	XBT Z isolation	Connects COM1 port to an equipment and provide isolation	All XBT GK models, XBT GT2000 and higher
XBT ZGCOM1	Port adapter	Connects COM1 port to optional RS422 equipment	All XBT GK models, XBT GT2000 and higher
XBT ZGCOM2	Port adapter	Connects COM2 port to optional RS485 equipment	All XBT GK models, XBT GT2000 and higher
XBT ZG9731	XBT Z cable	Connects COM1 to Mitsubishi PLC A series link unit or to Rockwell DF1 Logix PLC	All XBT GK models, XBT GT2000 and higher
XBT ZG9772	XBT Z cable	Connects COM1 to Mitsubishi PLC Q series link unit	All XBT GK models, XBT GT2000 and higher
XBT ZG9773	XBT Z cable	Connects COM1 to Mitsubishi PLC A series CPU	All XBT GK models, XBT GT2000 and higher
XBT ZG9774	XBT Z cable	Connects COM1 to Mitsubishi PLC Q series CPU	All XBT GK models, XBT GT2000 and higher
XBT ZG9775	XBT Z cable	Connects COM1 to Mitsubishi PLC FX series CPU	All XBT GK models, XBT GT2000 and higher
XBT ZG9740	XBT Z cable	Connects COM1 to Omron PLC Sysmac Link series	All XBT GK models, XBT GT2000 and higher
XBT ZG9722	XBT Z cable	Connects COM1 to RS422 devices	All XBT GK models, XBT GT2000 and higher
XBT ZG9778	XBT Z cable	Connects COM1 with port adapter to Mitsubishi PLC with Melsec 2 port adapter	All XBT GK models, XBT GT2000 and higher
XBT ZG979	Adapter		All XBT GK models, XBT GT2000 and higher
XBT ZG949	Adapter	Terminal RS422 block to connect XBT GT COM1 with port adapter to RS422 devices	All XBT GK models, XBT GT2000 and higher
XBT ZG9721	XBT Z cable	Connects COM1 or COM2 to Siemens PPI PLC	All
XBT ZG9292	XBT Z cable	Connects COM1 to Siemens MPI PLC	All XBT GK models, XBT GT2000 and higher

Product Number	Product name	Description	XBT GT/GK series
XBT Z9730 XBT Z9731	XBT Z cable	Connects COM1 with XBT Z adapter to Rockwell DF1 PLC	XBT GT1000/1005
XBT Z9732	XBT Z cable	Connects COM1 with XBT Z adapter to Rockwell DH485 PLC	All
XBT Z9740	XBT Z cable	Connects COM1 with XBT Z adapter to Omron PLC Sysmac Link series	XBT GT1000/1005
XBT Z9720	XBT Z cable	Connects COM1 with XBT Z adapter to Siemens 3964/RK512	All

XBT GT Tool Port Items

Product Number	Product name	Description	XBT GT series
XBT ZG915 (for PC Serial Port) XBT ZG925 (for PC USB Port)	Cable	Connects the XBT GT to a personal computer. Transfers screen data and user program(s).	XBT GT1000

USB Interface Items

Product Number	Product name	Description	XBT GT/GK series
XBT ZG935	Cable	Connects the panel to a personal computer. Transfers screen data and user program	XBT GT1005/2000, XBT GK2000
XBT ZGUSB	Cable	Extends a USB host interface on a cabinet with waterproofness	All XBT GK models, XBT GT1005 and higher
XBT ZGUMP	Gateway	Connects panels to Modbus Plus Fieldbus	All XBT GK models, XBT GT2000 and higher
TSXCUSBFIP	Gateway	Connects panels to Fipio Fieldbus	All XBT GK models, XBT GT2000 and higher
BMXXCAUSB018	Cable	Connects the panel to a USB terminal port of a PLC (Modicon M340)	All XBT GK models, XBT GT1005 and higher

Software

Product name	Description
Vijeo Designer (version 4.3 or higher for XBT GT, Version 4.6 or higher for XBT GK)	Software used to create HMI unit project data. It is installed in a personal computer.

Screen Protection Sheets

Product Number	Description	XBT GT/GK series
XBT ZG60	• Dirt-resistant sheet • The touch panel can be operated with this cover sheet attached • 5 sheets/pack	XBT GT1005
XBT ZG61		XBT GT1000
XBT ZG62		XBT GT2000
XBT ZG64		XBT GT4000
XBT ZG65		XBT GT53xx
XBT ZG66		XBT GT6000, XBT GT52xx
MPCYK50SPSKIT		XBT GT7000
XBT ZG68		XBT GK2000
XBT ZG69		XBT GK5000

Spring Clip Fasteners

Product Number	Description	XBT GT/GK series
XBT Z3002	Fasteners attach the panel to a mounting surface for IP65 protection on XBT GT and IP65/Nema4 on XBT GK: 12 clips/pack	All

Communication Modules

Product Number	Product Name	Description	XBT GT/GK series
XBT ZGPDP	Profibus DP module	These modules are used to connect XBT GT/GK to Fieldbus. They are piggy back modules for the XBT GT/GK panels.	All XBT GT/GK models except XBT GT1000 and 1005 series.
XBT ZGDVN	Device Net module		

Compact Flash Memory Card Interface

The Compact Flash memory card is used for XBT GT 2000 series and higher except XBT GT2110 units and all XBT GK models.

This slot accepts any of the following Compact Flash (CF) memory cards:

- XBT ZGM128 (128 Mb)
- XBT ZGM256 (256 Mb)
- MPCYN00CFE00N (512 Mb)
- MPCYN00CF100N (1 Gb)

Maintenance Options

Product Number	Product name	Description	XBT GT/GK series
XBT ZGFIX	Screw installation fastener	Fasteners to attach the panel to a mounting surface. (4 fasteners/pack)	All
XBT ZG51	Installation gasket	Provides a moisture resistant seal. Same as the seal included in the original package.	XBT GT1000/1005
XBT ZG52			XBT GT2000
XBT ZG54			XBT GT4000
XBT ZG55			XBT GT53xx
XBT ZG56			XBT GT6000 and XBT GT52xx
XBT ZG57			XBT GT7000
XBT ZG58			XBT GK2000
XBT ZG59			XBT GK5000
XBT ZGAUX	Auxiliary connector	Interface to control external reset, alarm output, buzzer output, and sound output.	XBT GK5000 and XBT GT4000 and higher
XBT ZGCLP1	USB clamp	Fastens onto a USB interface and prevents the USB cable from being disconnected.	XBT GT 2000
XBT ZGCLP2	USB holder		XBT GT except XBT GT1000/2000
XBT ZGCLP3	USB clamp		XBT GK
XBT ZGPWS1	Power connector	Supplies power to the unit.	XBT GT1000/1005 and XBT GT/GK2000
XBT ZGPWS2			XBT GK5000 and XBT GT 4000 and higher
XBT LYGK2	Sheets of changeable labels	Removable labels for identifying function keys.	XBT GK2000
XBT LYGK5			XBT GK5000

Specifications

3

At a Glance

Overview

This chapter presents the XBT GT and XBT GK specifications:

What's in this Chapter?

This chapter contains the following sections:

Section	Topic	Page
3.1	General Specifications	32
3.2	Functional Specifications	37
3.3	Interface Specifications	53
3.4	Part Numbers and Functions	62
3.5	Dimensions	94

3.1 General Specifications

At a Glance

Overview

This section presents XBT GT and XBT GK general specifications:

What's in this Section?

This section contains the following topics:

Topic	Page
Electrical Specifications	33
Environmental Specifications	34
Structural Specifications	36

Electrical Specifications

Specification	XBT GT1000 series	XBT GT1005 series	XBT GT2000, XBT GK2000 series	XBT GT4000 series	XBT GT5000, XBT GT6000, XBT GK5000 series	XBT GT7000 series
Input Voltage	24 VDC					
Rated Voltage	19.2 VDC to 28.8 VDC					
Acceptable Voltage Drop	≤ 1 ms		≤ 5 ms (except for XBT GT2110: ≤ 10 ms)	≤ 10 ms		
Power Consumption	≤ 7 W	≤ 13 W	≤ 26 W (except for XBT GT2110: ≤ 18 W)	≤ 28 W	≤ 50 W (except for XBT GT5230: ≤ 26 W)	≤ 42 W
In-Rush Current	≤ 50 A	≤ 60 A	≤ 30 A			
Voltage endurance between power terminal and frame ground (FG)	AC 500 V 20 mA for 1 min					
Insulation Resistance between power terminal and FG.	20 MΩ or higher at 500 VDC		10 MΩ or higher at 500 VDC			

Note: For in-rush current, the FWHM (full-width, half maximum) value is approximately 50 μs. (When exceeding 25 A)

Environmental Specifications

Note: (1) The front face of the unit, installed in a solid panel, has been tested using conditions equivalent to the standards shown in the specification. Therefore, prior to installing the unit, be sure to confirm the type of conditions that will be present in the operating environment. If the installation gasket is removed from the panel, the original protection level cannot be guaranteed. To maintain the original protection level, replace the installation gasket every year.

Specification	**XBT GT1000, XBT GT1005, XBT GT2000, XBT GT4000, XBT GT5000, XBT GT6000, XBT GK2000, XBT GK5000 series**	**XBT GT7000 series**
Ambient operating temperature (cabinet interior & panel face)	0 °C to +50 °C (32 °F to 122 °F) (1)	
Storage temperature	-20 °C to + 60 °C (-4 °F to 140 °F)	
Operating humidity	10% RH to 90% RH (Non condensing, wet bulb temperature: ≤ 39 °C)	
Storage humidity	10% RH to 90% RH (Non condensing, wet bulb temperature: ≤ 39 °C)	
Air purity (dust)	≤ 0.1 mg/m^3 (non-conductive levels)	
Pollution degree	Pollution degree 2	
Corrosive gases	Free of corrosive gases	
Atmospheric endurance (XBT GT operation altitude)	800 hPa to 1,114 hPa (2,000 m [6561 ft] or lower)	
Vibration immunity	IEC61131-2 compliant • Industry: 5 Hz to 9 Hz 3.5 mm, 9 Hz to 150 Hz 1 g.	
Noise immunity (via noise simulator)	Noise voltage: 1000 Vp-p. Pulse duration: 1 µs Rise time:1 ns	Noise voltage: 1500 Vp-p. Pulse duration: 1 µs Rise time: 1 ns
Electrostatic discharge immunity	6 kV contact, 8 kV air (complies with EN 61000-4-2 level 3)	

Note: (1) The LCD display's contrast STN color and monochrome models (see *p. 38*) may decrease when displays are used for hours at over 40°C [104°F] ambient operating temperature. After the temperature returns to normal, the display's contrast will be restored to normal. The unit's operation will not be affected even though the display's contrast is reduced.

Do not store the HMI unit in an area where the temperature is lower than that recommended in the unit's specifications. Doing so may cause the LCD display's liquid to freeze, which can damage the LCD. Also, if the storage area's temperature becomes higher than the specified level, the LCD's liquid may cause irreversible damage to the LCD. Therefore, only store the unit in areas where temperatures are within the unit's specifications. Do not restrict nor block the unit's rear-face ventilation slots.

Air quality requirements

Do not operate or store the unit where chemicals evaporate, or where chemicals are present in the air:

- Corrosive chemicals: Acids, alkalines, liquids containing salt.
- Flammable chemicals: Organic solvents.

Do not allow water, liquids, metal, and wiring fragments to enter the HMI unit's case.

Do not use the unit in an environment continually exposed to flammable gases.

Structural Specifications

Specification	XBT GT1000/1005 series	XBT GT2000 series	XBT GT4000 series
Grounding	Observe local codes and standards. The ground connection must have a resistance ≤ 100 Ω and the ground wire must have a cross section of at least 2 mm2 (AWG 14).		
Rating (For front panel or installed unit)	IP65 (IEC 60529) (1) NEMA # 250 Type 4X/13,indoor use only		
External dimensions	W130 mm (5.12 in) x H104 mm (4.09 in) x D41 mm (1.61 in)	W167.4 mm (6.60 in) x H135 mm (5.32 in) x D59.5 mm (2.34 in)	W215 mm (8.46 in) x H170 mm (6.69 in) x D60 mm (2.36 in)
Weight	≤ 0.4 kg (0.9 lbs)	≤ 1.0 kg (2.20 lbs)	≤ 1.8 kg (4.0 lbs)
Cooling Method	Natural air circulation		

Specification	XBT GT5000 series except for XBT GT5230	XBT GT6000 series, XBT GT5230	XBT GT7000 series
Grounding	Observe local codes and standards. The ground connection must have a resistance ≤ 100 Ω and the ground wire must have a cross section of at least 2 mm2 (AWG 14).		
Rating (For front panel or installed unit)	IP65 (IEC 60529) (1) NEMA # 250 Type 4X/13, indoor use only		
External dimensions	W270.5 mm (10.65 in) x H212.5 mm (8.37 in) x D57 mm (2.24 in)	W313 mm (12.32 in) x H239 mm (9.41 in) x D56 mm (2.20 in)	W395 mm (15.55 in) x H294 mm (11.57 in) x D60 mm (2.36 in)
Weight	≤ 2.5 kg (5.5 lbs)	≤ 3.0 kg (6.6 lbs)	≤ 5.6 kg (12.3 lbs)
Cooling Method	Natural air circulation		

Specification	XBT GK2000 series	XBT GK5330
Grounding	Observe local codes and standards. The ground connection must have a resistance ≤ 100 Ω and the ground wire must have a cross section of at least 2 mm (14AWG).	
Rating (For front panel or installed unit)	IP65 (IEC 60529) (1) NEMA # 250 Type 4X/13, indoor use only	
External dimensions	W220.3 mm (8.66 in) x H265 mm (10.34 in) x D60.3 mm (2.374 in)	W296 mm (11.65 in) x H332 mm (13.07 in) x D72.7 mm (2.862 in)
Weight	≤ 1.8 kg (4.0 lbs)	≤ 3.7 kg (6.0 lbs)
Cooling Method	Natural air circulation	

3.2 Functional Specifications

At a Glance

Overview

This section presents the XBT GT and XBT GK functional specifications of the display, memory and interfaces.

What's in this Section?

This section contains the following topics:

Topic	Page
Display Specifications	38
Memory, Clock, and Touch Panel	43
Industrial Pointer, Keypads and LEDs	45
Insert Labels XBT GK	48
Serial Interface	51

Display Specifications

STN Displays

Specification	XBT GT1100 XBT GT1130 XBT GT1105 XBT GT1135	XBT GT2110	XBT GT2120 XBT GT2130 XBT GK2120	XBT GT2220	XBT GT4230	XBT GT5230
Type	Monochrome LCD	Monochrome (Blue mode) LCD	Monochrome (B&W) LCD	Color		
Resolution (pixels)	320 x 240				640x480	
Active Display Area WxH (mm) WxH (in.)	76.7 x 57.5 3.02 x 2.26	115.2 x 86.4 4.54 x 3.40			153.7x115.8 6.05x4.56	215.2x162.3 8.43x6.39
Colors	8 levels of gray	16 gradations		4.096 colors		
Backlight (1)	LED Backlight (Color: Amber; Service life: 50,000 h. [half of original brightness]) (Color: Red; Service life:10,000 h. [half of original brightness])	CFL Backlight (Service life: 58,000 h. at 25°C and continuous operation [half of original brightness])		CFL Backlight (Service life: 75,000 h. at 25°C and continuous operation [half of original brightness])	CFL Backlight (Service life: 54,000 h. at 25°C and continuous operation [half of original brightness])	CFL Backlight (Service life: 54,000 h. at 25°C and continuous operation [half of original brightness])
Contrast Adjustment	8 levels of adjustment available via touch panel.					
Brightness Adjustment	2 levels of adjustment for XBT GT1000 and 8 levels of adjustment for XBT GT1005 available via touch panel.	8 levels of adjustment available via touch panel.				

Specification	XBT GT1100 XBT GT1130 XBT GT1105 XBT GT1135	XBT GT2110	XBT GT2120 XBT GT2130 XBT GK2120	XBT GT2220	XBT GT4230	XBT GT5230
System Embedded Language Fonts (2)	ASCII: (Code page 850) Alphanumeric (including European characters) Chinese: (GB2312-80 codes) simplified Chinese fonts Japanese (except for XBT GT1000 series): ANK 158, Kanji: 6,962 (JIS Standards 1 & 2) (including 607 non-kanji characters) Korean: (KSC5601 - 1992 codes) Hangul fonts Taiwanese: (Big 5 codes) traditional Chinese fonts					
Character Sizes (2)	8 X 8, 8 X 16, 16 X 16 and 32 X 32 pixels fonts					
Font Sizes	Width can be expanded 1 to 8 times. Height can be expanded 1/2 and 1 to 8 times.					
8 x 8 pixels	40 Char. per row, x 30 rows				80 Char. per row x 60 rows	
8 x 16 pixels	40 Char. per row, x 15 rows				80 Char. per row x 30 rows	
16 x 16 pixels	20 Char. per row x 15 rows				40 Char. per row x 30 rows	
32 x 32 pixels	10 Char.per row x 7 rows				20 Char. per row x 15 rows	

Note:
(1) Among backlight units there may be slight variations in illumination color, however, this does not affect the performance or quality of the unit.
(2) The display font will differ depending on which (language) character, or which size you select. Also, if Vijeo Designer 4.3 or later software is used, additional high quality fonts are available with 16x16 or larger characters.

TFT Displays

Specification	XBT GT1335	XBT GT2330 XBT GK2330	XBT GT4330 XBT GT4340	XBT GT5330 XBT GT5340 XBT GK5330	XBT GT6330 XBT GT6340	XBT GT7340
Type	TFT Color LCD					
Resolution (pixels)	320 x 240		640x480		800x600	1024x768
Active Display Area WxH (mm) WxH (in.)	76.7 x 57.5 3.02 x 2.26	115.2x86.4 4.54x3.40	153.7x115.8 6.05x4.56	211.2x158.4 8.31x6.24	248x186.5 9.76x7.34	306.2x230.1 12.06x9.06
Colors	256 colors	65.536 colors				

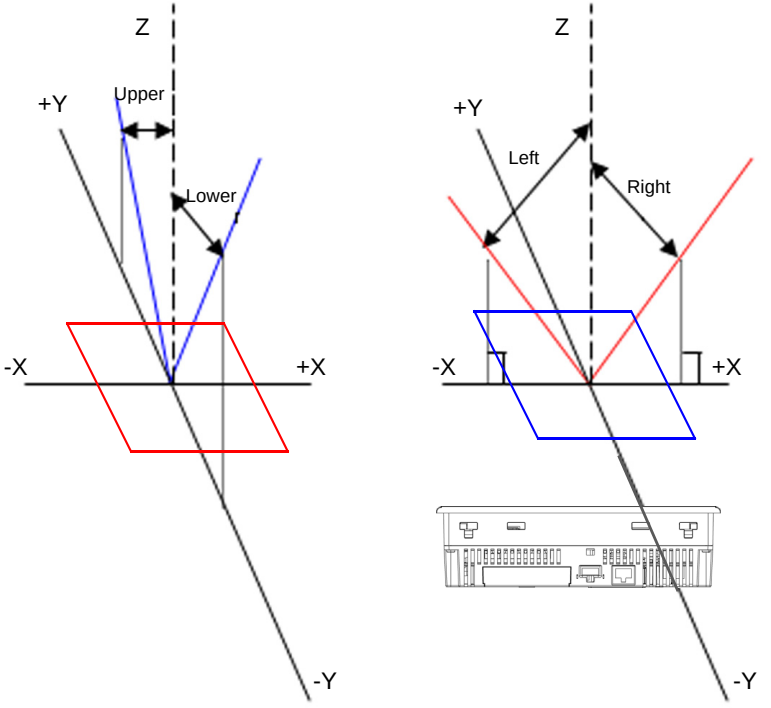
Specification	XBT GT1335	XBT GT2330 XBT GK2330	XBT GT4330 XBT GT4340	XBT GT5330 XBT GT5340 XBT GK5330	XBT GT6330 XBT GT6340	XBT GT7340
Backlight (1)	CFL Backlight (Service life: 50,000 h. at 25°C and continuous operation [half of original brightness])		CFL Backlight (Service life: 54,000 h. at 25°C and continuous operation [half of original brightness])	CFL Backlight (Service life: 50,000 h. at 25°C and continuous operation [half of original brightness])		
Contrast Adjustment	8 levels of adjustment available via touch panel	Not available.	8 levels of adjustment available via touch panel	Not available.		
Brightness Adjustment	8 levels of adjustment available via touch panel.					
System Embedded Language Fonts (2)	ASCII: (Code page 850) Alphanumeric (including European characters) Chinese: (GB2312-80 codes) simplified Chinese fonts Korean: (KSC5601 - 1992 codes) Hangul fonts Taiwanese: (Big 5 codes) traditional Chinese fonts					
Character Sizes (2)	8 X 8, 8 X 16, 16 X 16 and 32 X 32 pixel fonts					
Font Sizes	Width can be expanded 1 to 8 times. Height can be expanded 1/2 and 1 to 8 times.					
8 x 8 pixels	40 Char. per row, x 30 rows		80 Char. per row, x 60 rows	100 Char. per row, x 75 rows	128 Char. per row, x 96 rows	
8 x 16 pixels	40 Char. per row, x 15 rows		80 Char. per row, x 30 rows	100 Char. per row x 37 rows	128 Char. per row, x 48 rows	
16 x 16 pixels	20 Char. per row x 15 rows		40 Char. per row, x 30 rows	50 Char. per row x 37 rows	64 Char. per row, x 48 rows	
32 x 32 pixels	10 Char.per row x 7 rows		20 Char. per row x 15 rows	25 Char. per row x 18 rows	32 Char. per row, x 24rows	

Note:
(1) Among backlight units there may be slight variations in illumination color, however, this does not effect the performance or quality of the unit.
(2) The display font will differ depending on which (language) character, or which size you select. Also, if Vijeo Designer 4.3 or later software is used, additional high quality fonts are available with 16x16 or larger characters.

Display Viewing Angle and Brightness

Model	Viewing angle										Brightness	
Schneider	Upper		Lower		Left		Right		Unit	Contrast (CR)	Actual Products	
	Min	Typ	Min	Typ	Min	Typ	Min	Typ			Typ	Unit
XBT GT1100	20	-	30	-	40	-	40	-	degrees	CR≥2	87/51	cd/m
XBT GT1130												
XBT GT1105												
XBT GT1135												
XBT GT1335												
XBT GT2110	20	-	40	-	45	-	45	-	degrees	CR≥2	216	cd/m
XBT GT2120												
XBT GT2130												
XBT GT2220	-	65	-	70	-	55	-	55	degrees	CR≥2	298	cd/m
XBT GT2330	60	65	35	40	60	65	60	65	degrees	CR≥5	422	cd/m
XBT GT4230	-	20	-	40	-	40	-	40	degrees	CR≥2	167	cd/m
XBT GT4330	-	50	-	70	-	70	-	70	degrees	CR≥5	213	cd/m
XBT GT4340												
XBT GT5230	-	20	-	35	-	45	-	45	degrees	CR≥2	172	cd/m
XBT GT5330	35	40	55	70	60	70	60	70	degrees	CR≥10	311	cd/m
XBT GT5340												
XBT GT6330	30	50	40	70	45	70	45	70	degrees	CR≥10	170	cd/m
XBT GT6340												
XBT GT7340	60	75	50	55	60	80	60	80	degrees	CR≥2	220	cd/m
XBT GK2120	20	-	40	-	45	-	45	-	degrees	CR≥2	216	cd/m
XBT GK2330	60	65	35	40	60	65	60	65	degrees	CR≥5	422	cd/m
XBT GK5330	35	40	55	70	60	70	60	70	degrees	CR≥10	311	cd/m

The definition of viewing angle:



Memory, Clock, and Touch Panel

Memory

Memory	XBT GT1100 XBT GT1130	XBT GT1105 XBT GT1135 XBT GT1335	XBT GT2110	XBT GT2120 XBT GT2130 XBT GT2220 XBT GT2330 XBT GK2120 XBT GK2330	XBT GT4230 XBT GT4330 XBT GT5230 XBT GT5330 XBT GT6330 XBT GK5330	XBT GT4340 XBT GT5340 XBT GT6340 XBT GT7340
Application Flash EPROM	8 MB	16 MB	16 MB	16 MB	32 MB	32 MB
Data Backup SRAM uses a lithium battery (1)	512 KB	512 KB	128 KB	512 KB	512 KB	512 KB
Application run DRAM	16 MB	16 MB	32 MB	32 MB	32 MB	64 MB

Legend:
(1) A lithium battery life is:
- 10 years when the battery's ambient temperature is ≤ 40 °C (104 °F.).
- 10 years when the unit's ambient temperature is ≤ 25 °C (77 °F.).

When used for backup (without main power):
- Approximately 60 days, with a fully charged battery.
- Approximately 6 days, with a 10% charged battery.

Clock

Variations in operating conditions and battery life can cause a clock error from -380 to +90 seconds per month.

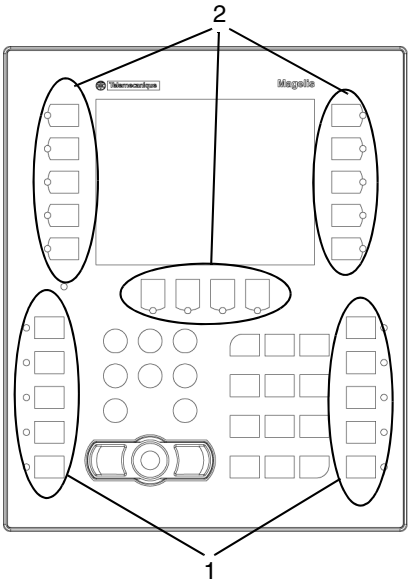
Monitor and adjust the time as needed to satisfy the system requirements. For time-dependent applications, refer to the Vijeo-Designer Help for information on synchronizing the unit’s clock with the PLC clock. To preserve processing time, do not synchronize continually. The clocks can be synchronized approximately twice/day.

Touch Panel and Function Keys

Specification	XBT GT1000	XBT GT1005/2000/4000/5000/6000/7000 series
Touch panel resolution	8 x 6 matrix 1 or 2 point push, selectable	Analog typing system 1024x1024 resolution, (Single point push selectable)
Function keys	6	-

Specification	XBT GK2000 series	XBT GK5000 series
Touch panel resolution	Analog typing system 1024x1024 resolution, (Single point push selectable)	Analog typing system 1024x1024 resolution, (Single point push selectable)
Static Function keys (Fi)	10	12
Dynamic Function keys (Ri)	14	18

XBT GK Function Keys



1 Static Function Keys

2 Dynamic Function Keys

Note: Static keys (Fi) can be customized by printing text or pictograms on the insert labels using label design templates in Vijeo-Designer. Dynamic keys (Ri) can be linked to labels or images on the screen using tools in Vijeo-Designer.

Industrial Pointer, Keypads and LEDs

Introduction

XBT GK units come with an industrial pointer device and keypads in addition to the touch screen feature. They are useful for environments where touch screen applications are inappropriate. For example, operators who handle abrasive or corrosive material may damage displays due to the residue left on their fingers or gloves. The pointer and keypad provide an alternate method of interacting with the units.

Industrial Pointer Device

The industrial pointer device moves a pointer on the panel. When the pointer is positioned over an object, you can click the pointer button to interact with the object. Clicking an object with the pointer has the same effect as touching it on the panel with your finger. The pointer changes shape when positioned over an active object or area.

All XBT GK units have 2 pointer buttons. They both have the same effect, so you can use either one, for example, in the case of left-handed or right-handed operators.

An operator can interact with the unit in one of four ways:

- Industrial Pointer Device only
- Touch-screen only
- Both
- Neither Touch-screen nor Industrial Pointer Device. Interaction with the unit is only possible through the function keys.

You specify how an operator interacts with the unit in Vijeo-Designer.

Keypads

Besides function keys (static and dynamic), XBT GK units come with an alphanumeric keypad to facilitate operator input. The alphanumeric keypad consists of two parts: the cursor keys and the alphanumeric keys.

Cursor Keys

Key	Description
Backspace ←	Deletes the digit to the left of the cursor position in a data input field.
Esc	Remove the cursor from a data input field without modifying the previous value.
Enter	Validate data entered into a data input field.
Clr (Shift + Back Space)	Deletes everything in the active data input field.
System (Shift + Esc)	Opens the system configuration panel.
Print (Shift + Enter)	Takes a snapshot of the current panel. See the SNAPSHOT function in the Vijeo-Designer help.
Increment ▲	• Sets focus from one object to another in a list of objects • Increases or decreases the variable value in a graphical tool or object • Increases or decreases the numerical value in a numerical input field
Decrement ▼	
◀	Moves the cursor left or right in a data input field.
▶	

Alphanumeric Keys

Key	Shift + Key	Description
7ABC	7abc	Each press of the key cycles through a character that can be entered with that key. For example, the "7ABC" key: • 1 press: input = 7 • 2 presses: input = A • 3 presses: input = B • 4 presses: input = C To get lower case alphabetical characters, hold Shift down while you press the keys. For example, the "7ABC" key: • shift + 2 presses: input = a • shift + 3 presses: input = b • shift + 4 presses: input = c
8DEF	8def	
9GHI	9ghi	
4JKL	4jkl	
5MNO	5mno	
6PQR	6pqr	
1STU	1stu	
2VWX	2vwx	
3YZ_	3yz_	
+/-	+/-	
0	0	
.	.	

Fine Tuning

For numerical values in a data input field, use the Increment and Decrement keys on the edition keypad to increase or decrease the value. The fine tuning feature controls the rate at which the value increases or decreases. The following examples show how to use fine tuning with the Increment key, but work exactly the same for the Decrement key as well.

- Each press of the Increment key increases the value by one, to the next least significant digit. For example, after a key press, the value 2 increments to 3, after a second key press, the value increments to 4, and so on.
- Press and hold the key to increment the value automatically. The value increases by the least significant digit as before.
- Continue to hold the key:
  - After ten increments, the value starts to increase in multiples of 10. For example, the value 12 increments to 22, then 32, then 42, and so on.
  - After 10 more increments, the value increases in multiples of 100. For example, the value 112 becomes 212, 312, 412, and so on.
  - 10 increments more, and the value increase in multiples of 1000. For example, the value 1112 becomes 2112, 3112, 4112, and so on. This is the highest increment rate.
  - When you reach the maximum value specified for the data input, the increment key becomes inactive.
- Release the Increment key to go back to increasing the value by one. Hold the key again to restart the fine tuning feature.

LEDs

Each function key has a corresponding LED. The behavior of the LEDs are programmable at the application level. For example, a LED can start blinking to highlight possible choices or indicate ongoing action as determined by the PLC.

LEDs can light up in one of three colors: orange, red, and green.

LEDs can be in one of four states: off, steady on, blinking (about 1 Hz), fast blinking (>1 Hz).

Insert Labels XBT GK

Overview

XBT GKs are delivered with an insert label sheet providing the following label types to assign different texts or symbols to the function keys:

- function key labels
- blank labels

All labels are pre-cut and just have to be pressed out of the label sheet.

The ready-to-use function key labels can directly be inserted into the XBT GK as described below (see *p. 48*).

Printing Insert Labels

You can print our your own text or symbols on the blank labels. Make sure to remove the protective layer from the label sheet before printing. To print your own labels, use Vijeo-Designer and one of the following laser printers:

- Laser printer Epson 6200L
- Copier Lexmark X852e

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Make sure that the text/symbols on your insert label always correspond to what is configured for the XBT GK in Vijeo Designer. Otherwise the keys of your unit will not initiate the actions indicated on them.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Inserting Insert Labels

⚠ CAUTION

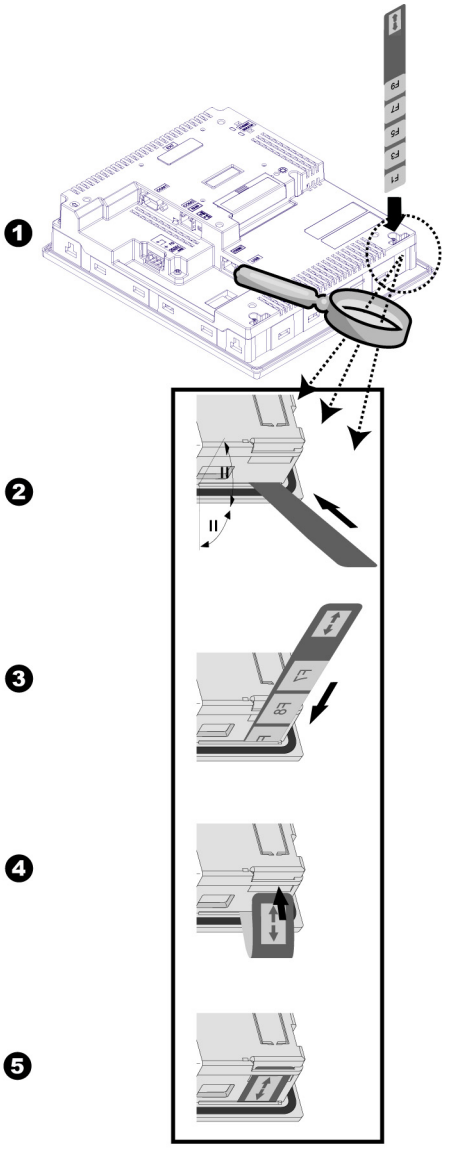
WATER DAMAGE

Be sure to insert the labels properly and slide the flap correctly into the chassis slit. Do not pinch the flap between the product and the panel.

Failure to follow these instructions can result in injury or equipment damage.

Insert the labels into the device carefully. Make sure that they indicate the correct functions on the panel. The labels can be replaced as needed. The following describes the procedures of inserting insert labels into the XBT GK.

Graphical Representation of Correctly Inserting Labels into the XBT GK



Inserting Labels into the XBT GK

Step	Action
1	Press the pre-cut insert label of your choice out of the insert label sheet.
2	Remove the XBT GK from any enclosures or mounts. Take the XBT GK and turn it around so that you can see its rear panel. At the bottom two corners of the rear panel, located directly behind the overlapping display, you will find the opening for the insert label.
3	Insert the insert label cautiously into this opening (as shown in the above figure) until the key symbols / texts on the wide part of the insert labels have disappeared and the wide part of the insert label is flush with the opening. There will be merely the small flap of the insert label with the double arrow being visible outside the unit.
4	Turn the XBT GK around and check the front that all symbols / texts are clearly visible at the keys. If the texts / symbols are not clearly visible, insert the insert label a bit further into the opening.
5	If the texts / symbols are clearly visible on the front of the unit, take the small part (with the double arrow sign) of the insert label that is still visible on the rear of the unit and slide this flap into the slit. The flap should now be flush with the rear of the unit. If the insert label has not correctly been inserted into the XBT GK, the flap of the insert label will be too long to fit into this slit.

Serial Interface

Introduction

All XBT GT and XBT GK displays are provided with a serial interface and tool port or USB Interface.

Serial Tool Port

The following table describes the tool port of XBT GT1100/1130

Interface	Description
Tool Port	Asynchronous TTL level nonprocedural interface command Used for transferring data user program to and from Vijeo Designer and XBT GT.

Serial Interface COM1

The following table describes the serial interface COM1 of XBT GT1100/1130 and 1005 series units.

Interface	Description
Serial interface COM1 RJ45	
Asynchronous Transmission	RS232C / RS485
Data Length	7 or 8 bits
Stop Bit	1 or 2 bits
Parity	None, odd or even
Data Transmission Speed	2,400 to 115,200 bps

The following table lists the serial interface COM1 of XBT GT2000/4000/5000/6000/7000 and XBT GK series units.

Interface	Description
Serial interface COM1 D-Sub9	
Asynchronous Transmission	RS232C/RS422-485
Data Length	7 or 8 bits
Stop Bit	1 or 2 bits
Parity	None, odd or even
Data Transmission Speed	2,400 to 115,200 bps

Serial Interface COM2

The following table lists the serial interface COM2 of XBT GT2000/4000/5000/6000/7000 and XBT GK series units.

Interface	Description
Serial interface COM2 RJ45	
Asynchronous Transmission	RS485
Data Length	7 or 8 bits
Stop Bit	1 or 2 bits
Parity	None, odd or even
Data Transmission Speed	2,400 bps to 187.5Kbps

Ethernet Interface

The following table lists the serial interface Ethernet available for XBT GT series and XBT GK series:

Interface	Description
Ethernet RJ45	IEEE802.3, 10Base-T/100Base-TX (except for XBT GT1100/1105/2110/2120/2220 and XBT GK2120: none, and XBT GT1130: 10Base-T.)

USB Interface and Memory Card

The following table lists the serial interface USB and memory card available for XBT GT and XBT GK series:

Interface	Description
USB TYPE-A x 1	USB 1.1 host I/F
CF card slot (TYPE-II (except XBT GT1100/1130/1105/1135/1335/2110)	Compact Flash

3.3 Interface Specifications

At a Glance

Overview

This section presents the interface specifications of the units.

What's in this Section?

This section contains the following topics:

Topic	Page
Specifications of Serial Interface COM1	54
Specifications of Serial Interface COM2	58
Other Interfaces	59

Specifications of Serial Interface COM1

Introduction

This interface is used to connect:

- XBT GT1000/1005 series to remote equipment, via an RS232C or RS485 cable. The connector used is a RJ45-type connector.
- XBT GT2000/4000/5000/6000/7000 series to remote equipment, via an RS232C or RS422-485 cable. The connector used is a 9-pin SUB-D connector.
- XBT GK series to remote equipment, via an RS232C or RS422-485 cable. The connector used is a 9-pin SUB-D connector.

When using a long PLC cable to connect to the unit, it is possible the cable can be at a different electrical potential than the unit, even if both are connected to ground.

The unit's serial port is not isolated. The SG (signal ground) and the FG (frame ground) terminals are connected inside the unit.

⚠ DANGER

ELECTRIC SHOCK

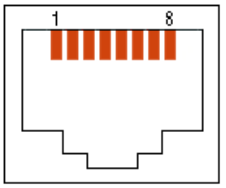
When connecting an external device to the unit with the SG terminal, be sure to check that no short-circuit loop is created when you setup the system.

- Connect the #8 SG terminal to remote equipment when the host (PLC) unit is not isolated. To reduce the risk of damaging the RS232C/RS485 circuit, make sure to connect the #8 SG terminal to the appropriate equipment.

Failure to follow these instructions will result in death or serious injury.

XBT GT1100/ 1130 Serial Interface COM1

This interface is used to connect a RS-232C/RS485 serial cable. An RJ45 8-pin plug connector is used.

Pin Connection	Pin	Signal Name	Direction	Meaning
Front 	1	RXD	Input	Receive Data (RS232C)
	2	TXD	Output	Send Data (RS232C)
	3	Not connected	-	-
	4	D1	Output/Input	Transfer Data (RS485)
	5	D0	Output/Input	Transfer Data (RS485)
	6	RTS	Output	Request To Send
	7	Not connected	-	-
	8	SG	-	Signal Ground

Any excessive weight or stress on communication cables may cause an equipment's disconnection and unintended equipment operation.

⚠ CAUTION

LOSS OF POWER

- All connections to the communication ports on the bottom and sides of the unit must not put excessive stress on the ports.
- Securely attach communication cables to the panel or cabinet.
- Use only RJ45 cables with a locking tab in good condition.
- Use RJ45 connectors with locking system.

Failure to follow these instructions can result in injury or equipment damage.

XBT GT1005/ 2000/4000/5000/ 6000/7000 and XBT GK series Serial Interface COM1

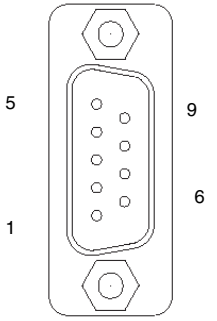
⚠ CAUTION

LOSS OF POWER

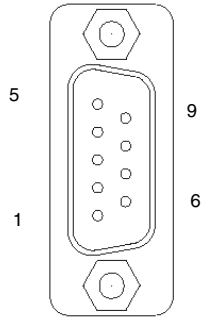
- All connections to the communication ports on the bottom and sides of the unit must not put excessive stress on the ports.
- Securely attach communication cables to the panel or cabinet.
- Use only 9-pin SUB-D cables with a locking system in good condition.
- Use 9-pin SUB-D connectors with locking system.

Failure to follow these instructions can result in injury or equipment damage.

The following table describes the serial interface with a 9-pin SUB-D connector via an RS232C cable.

Pin Connection	Pin	Signal Name	Direction	Meaning
	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send Possible
	9	CI(RI)/VCC	Input	Called status display/ +5V5% Output 0.25A
	Shell	FG	-	Frame Ground (Common with SG)

The following table describes the serial interface with a 9-pin SUB-D connector via an RS422/RS485 cable.

Pin Connection	Pin	Signal Name	Direction	Meaning
	1	RDA	Input	Receive Data A (+)
	2	RDB	Input	Receive Data B (-)
	3	SDA	Output	Send Data A (+)
	4	ERA	Output	Data Terminal Ready A (+)
	5	SG	-	Signal Ground
	6	CSB	Input	Send Possible B (-)
	7	SDB	Output	Send Data B (-)
	8	CSA	Input	Send Possible (A)
	9	ERB	Output	Data Terminal Ready B (-)
	Shell	FG	-	Frame Ground (Common with SG)

Any excessive weight or stress on communication cables may cause an equipment's disconnection.

Specifications of Serial Interface COM2

Introduction

This interface is used to connect the XBT GT2000/4000/5000/6000/7000 and XBT GK series to the remote equipment, via RS485 cable. The connector used is a RJ45-8-pin type connector.

The unit's Serial Port is not isolated. The SG (signal ground) and FG (frame ground) terminals are connected inside the unit.

⚠ DANGER

ELECTRIC SHOCK HAZARD

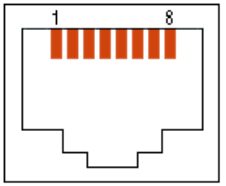
Make sure that no short-circuit loop is created when connecting an external device to the unit with the SG terminal.

- Connect the #8 SG terminal to remote equipment when the host (PLC) unit is not isolated. To reduce the risk of damaging the RS485 circuit, make sure to connect the #8 SG terminal to the appropriate equipment.

Failure to follow these instructions will result in death or serious injury.

Serial Interface COM2 with RS485 cable

This interface is used to connect a RS485 serial cable to a XBT GT2000/4000/5000/6000/7000 or XBT GK series unit. RJ45 8-pin plug connector is used.

Pin Connection	Pin	Signal Name	Direction	Meaning
Front 	1	Not connected	-	-
	2	Not connected	-	-
	3	Not connected	-	-
	4	D1	Output/Input	Transfer Data (RS485)
	5	D0	Output/Input	Transfer Data (RS485)
	6	RTS	Output	Request To Send
	7	Not connected	-	-
	8	SG	-	Signal Ground

Other Interfaces

Ethernet Interface

The Ethernet Interface is used for the following units:

- XBT GT1130
- XBT GT1135
- XBT GT1335
- XBT GT2130
- XBT GT2330
- XBT GT4000 series
- XBT GT5000 series
- XBT GT6000 series
- XBT GT7000 series
- XBT GK2330
- XBT GK5330

This interface complies with the IEEE802.3 standard for Ethernet 10Base-T (XBT GT1000), 10Base-T/100Base-TX (XBT GT1005/2000/4000/5000/6000/7000 and XBT GK series) connections.

The following table describes the LED colors and status:

LED	Contents
Orange	• When the power supply is ON: LED lights up. • When sending or receiving: LED blinks.
Green	When linking: LED lights up.

USB Interface

The USB Interface accepts a USB data transfer cable and is used for the following units:

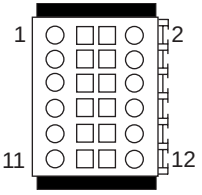
- XBT GT1005 series
- XBT GT2000 series
- XBT GT4000 series
- XBT GT5000 series
- XBT GT6000 series
- XBT GT7000 series
- XBT GK series

Sound Output/ AUX Input/ Output Interface for XBT GT 4000/ 5000/6000/7000 Series and XBT GK 5330

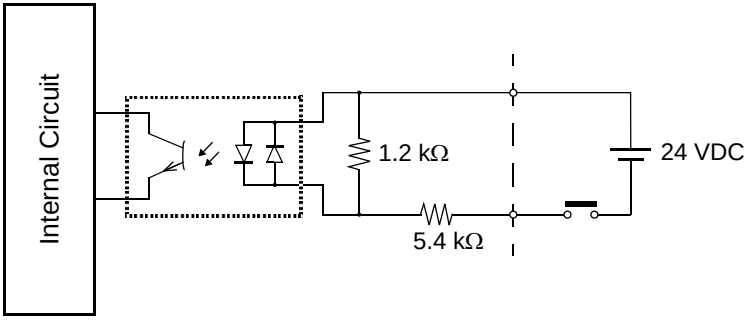
The following table describes the Output Interface specifications for the AUX Port:

Sound Output Interface	**Speaker Output:** **70mW (Rated Load: 8W, Frequency:1KHz)** **Connector: Two piece type terminal block**
AUX Input/Output Interface	Alarm Output, RUN Output; Buzzer Output: Rated Voltage: 24VDC Rated Current: 50mA
	Remote Reset Input: Input Voltage: 24VDC Input Current: 6mA Operating Voltage: (When ON) Minimum 9VDC, (When ON) Maximum 2.5VDC Connector: Two piece type terminal block

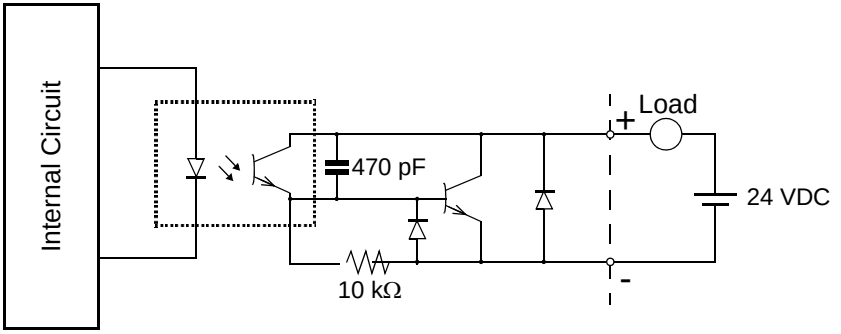
This interface is used for external reset, alarm output, buzzer output or sound output.

Pin Connection	**Pin**	**Signal Name**	**Direction**	**Meaning**
	1	RESET IN_A	Input	External Reset Input
	2	RESET IN_B	Input	
	3	RUN+	Output	RUN Signal
	4	RUN-	Output	
	5	ALARM+	Output	ALARM Signal
	6	ALARM-	Output	
	7	BUZZER+	Output	Buzzer Signal
	8	BUZZER-	Output	
	9	NC	-	Not Connected
	10	NC	-	Not Connected
	11	SP	Output	Speaker Out
	12	SP_GROUND	Output	Speaker Ground

Input Circuit



Output Circuit



3.4 Part Numbers and Functions

At a Glance

Overview

This section presents the Part Number and Functions of XBT GT and XBT GK units.

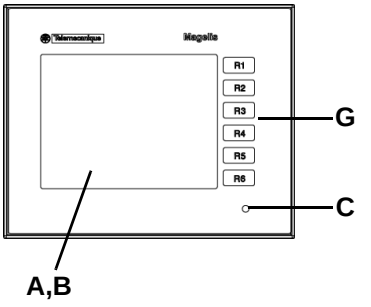
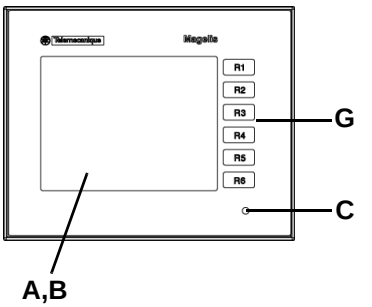
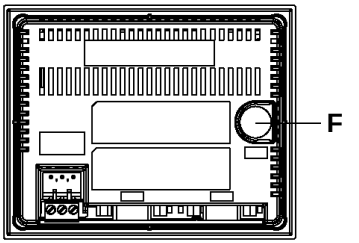
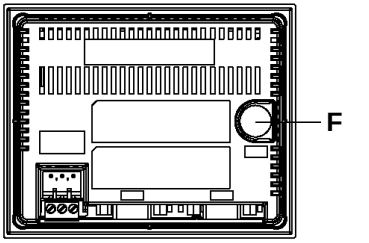
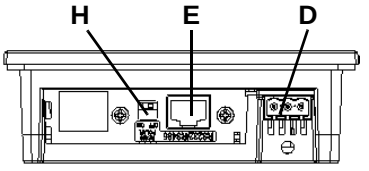
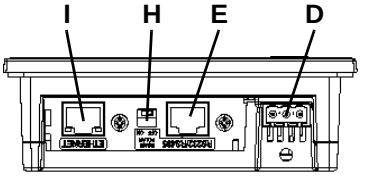
What's in this Section?

This section contains the following topics:

Topic	Page
Parts Identification and Functions	63
Terminal Configuration Switches	90

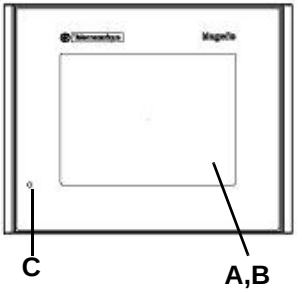
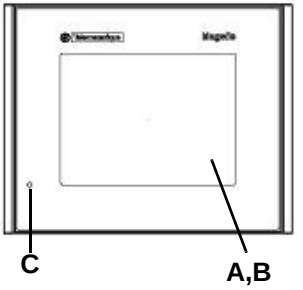
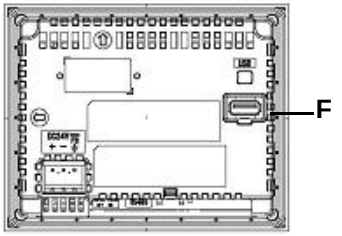
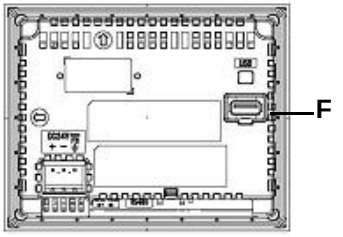
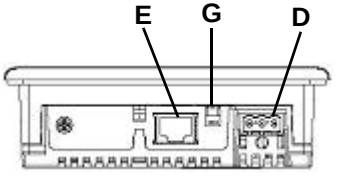
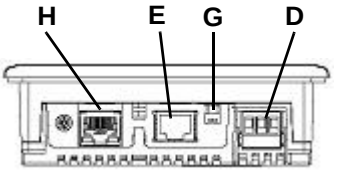
Parts Identification and Functions

XBT GT1100 and XBT GT1130

Side	XBT GT1100	XBT GT1130
Front		
Rear		
Bottom		

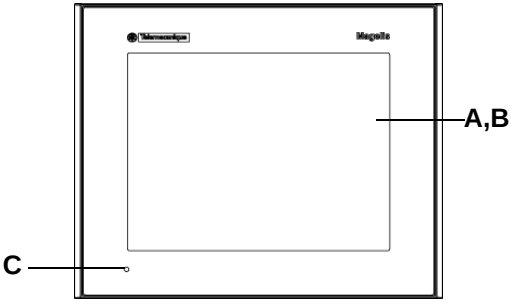
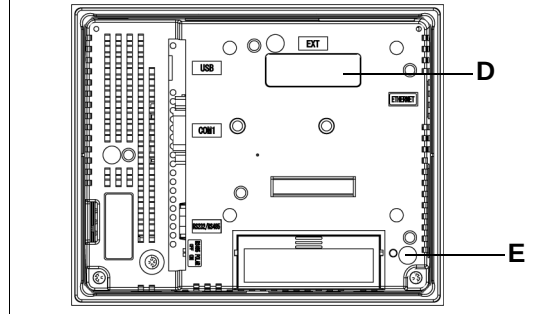
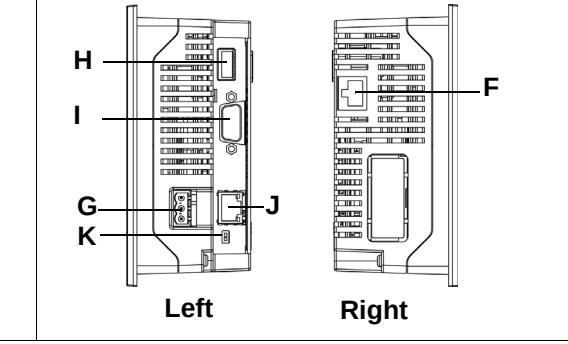
Part	Description
A	Display: displays user created screens and remote equipment variables.
B	Touch panel: performs screen change operations and sends data to the host (PLC).
C	Status LED
D	Power input Terminal block: connects the XBT GT power cable's input and ground wires to the XBT GT.
E	Serial I/F (host I/F 8 pin RJ45): connects a RS-232C or RS485 (serial) cable (from the host/PLC) to the XBT GT (Y port).
F	Tool port connector: connects the Data Transfer Cable to the XBT GT.
G	Function switches (R1 to R6): used for function keys.
H	RS485 Line Polarization Selector Switch.
I	Ethernet Interface (except for XBT GT1100): permits to connect the XBT GT unit (X port) to PLC from a Ethernet cable.

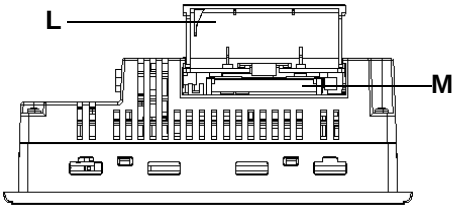
XBT GT1005 Series

Side	XBT GT1105	XBT GT1135/1335
Front		
Rear		
Bottom		

Part	Description
A	Display: displays user created screens and remote equipment variables.
B	Touch panel: performs screen change operations and sends data to the host (PLC).
C	Status LED
D	Power input Terminal block: connects the XBT GT power cable's input and ground wires to the XBT GT.
E	Serial I/F (host I/F 8 pin RJ45): connects a RS-232C or RS485 (serial) cable (from the host/PLC) to the XBT GT (Y port).
F	USB interface (USB1.1): connects a data transfer cable or peripherals or PLC USB terminal port to XBT GT.
G	RS485 Line Polarization Selector Switch.
H	Ethernet interface (LAN) (10Base-T/100Base-TX): RJ-45 connector is used, and the LED turns ON or OFF to indicate the current status. ● Green ON: data transmission available. ● Green OFF: no connection or subsequent transmission failure. ● Yellow ON: data transmission is occurring. ● Yellow OFF: no data transmission.

XBT GT2000 Series

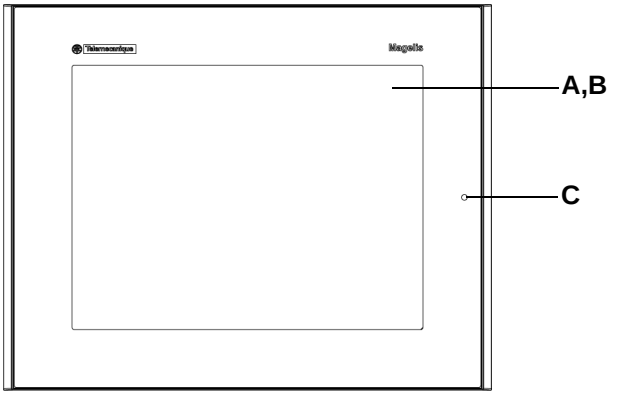
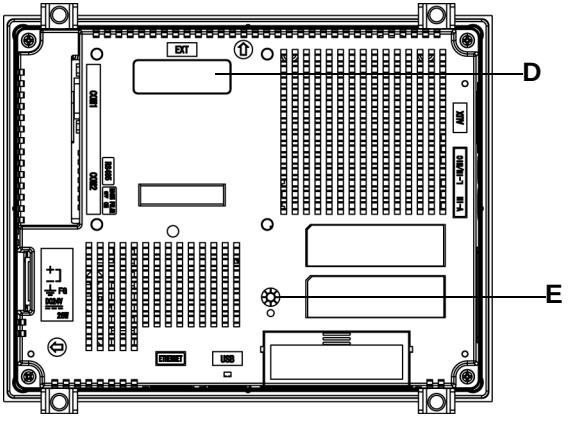
Side	XBT GT2000 series Part Identification
Front	
Rear	
Left and Right	

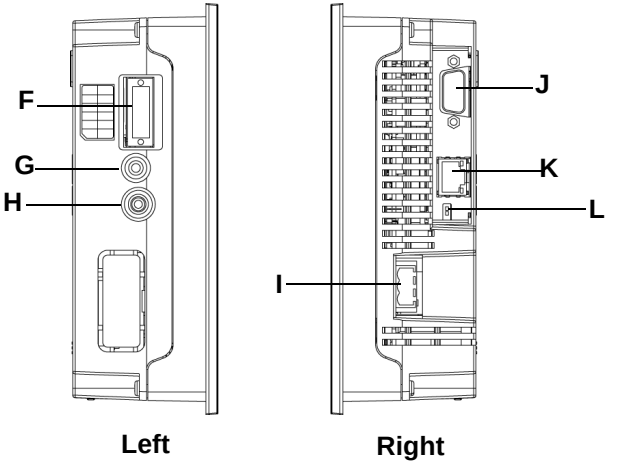
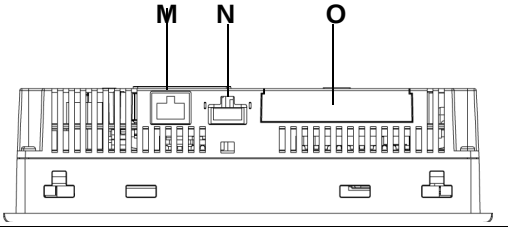
Side	XBT GT2000 series Part Identification
CF Card Cover Open	

Part	Description
A	Display: displays user created screens and remote equipment variables.
B	Touch panel: performs screen change operations and sends data to the host (PLC).
C	Status LED: ● Green (steady): normal operation (power is ON) or OFFLINE operation. ● Orange (steady): backlight burnout is detected. ● Orange (blinking): during software startup. ● Red (steady): when power is turned ON. ● Not lit: power is OFF.
D	Expansion unit interface: connects expansion units with communication features.
E	CF card access lamp (except XBT GT2110): ● Green ON: the CF card is inserted and the cover is closed, or the CF card is being accessed. ● Green OFF: the CF card is not inserted or is not being accessed.
F	Ethernet interface (10Base-T/100Base-TX) (except XBT GT2110/2120): RJ-45 connector is used, and the LED turns ON or OFF to indicate the current status. ● Green ON: data transmission available. ● Green OFF: no connection or subsequent transmission failure. ● Yellow ON: data transmission is occurring. ● Yellow OFF: no data transmission.
G	Power input terminal block: connects the XBT GT power cable's input and ground wires to the XBT GT.
H	USB interface (USB1.1): connects a data transfer cable or peripherals or PLC USB terminal port to XBT GT.
I	Serial interface COM1: connects a RS-232C or RS422-485 (serial) cable (from the host/PLC) to the XBT GT (COM1 port).
J	Serial interface COM2: connects a RS485 (serial) cable (from the PLC) to the XBT GT (COM2 port).
K	RS485 line polarization switch selector.

Part	Description
L	CF card cover: covers the CF card slot. This cover must be closed when accessing the CF card (except XBT GT2110) (see *p. 90*).
M	CF card socket: permits insertion of the CF card.

XBT GT4000 Series

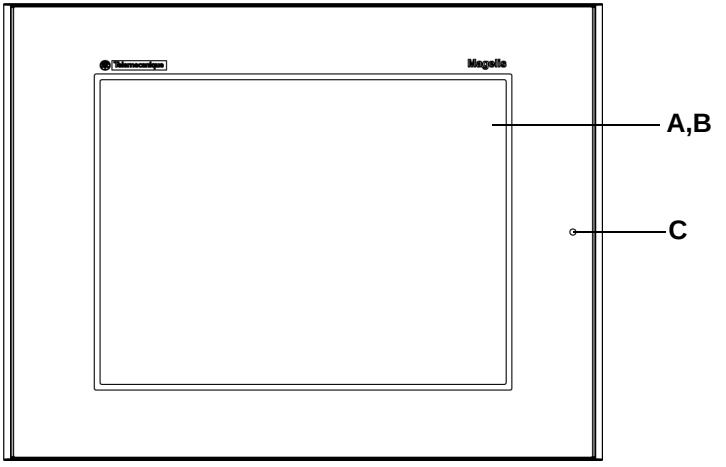
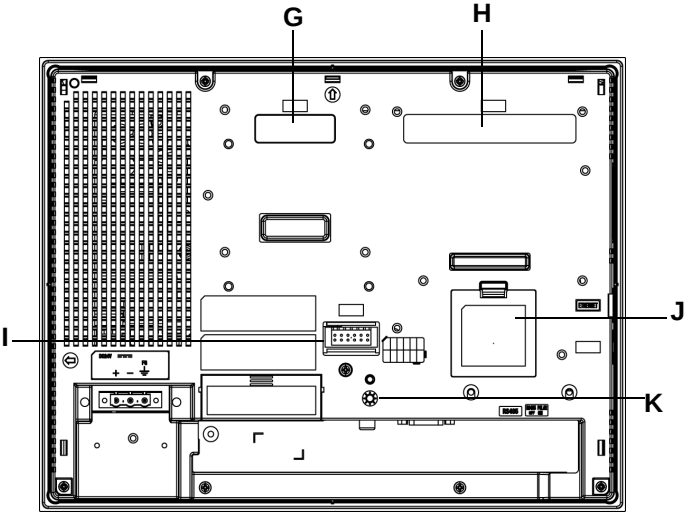
Side	XBT GT4000 series Part Identification
Front	
Rear	

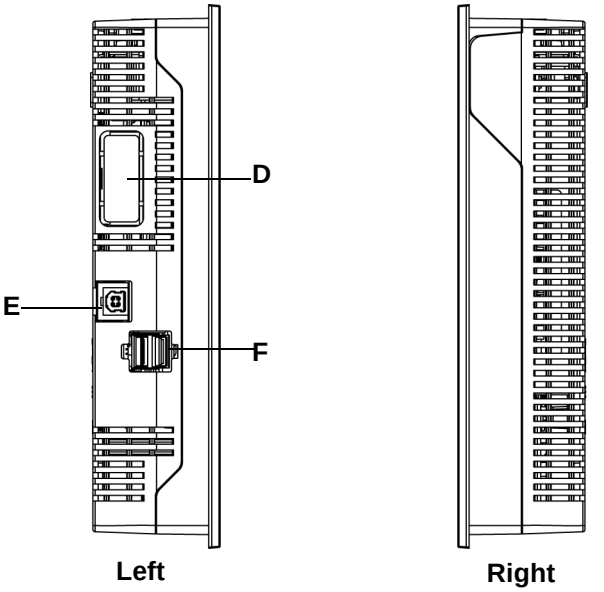
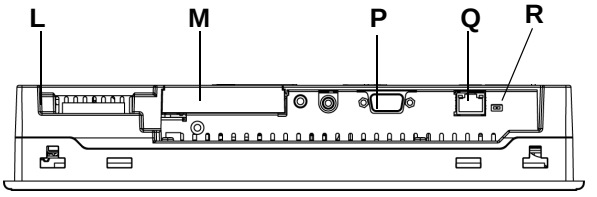
Side	XBT GT4000 series Part Identification
Left and Right	
CF Card Cover	

Part	Description
A	Display: displays user created screens and remote equipment variables.
B	Touch Panel: performs screen change operations and sends data to the host (PLC).
C	Status LED: ● Green (steady): normal operation (power is ON) or OFFLINE operation. ● Orange (steady): backlight burnout is detected. ● Orange (blinking): during software startup. ● Red (steady): when power is turned ON. ● Not lit: power is OFF.
D	Expansion unit interface: connects expansion units with communication features.

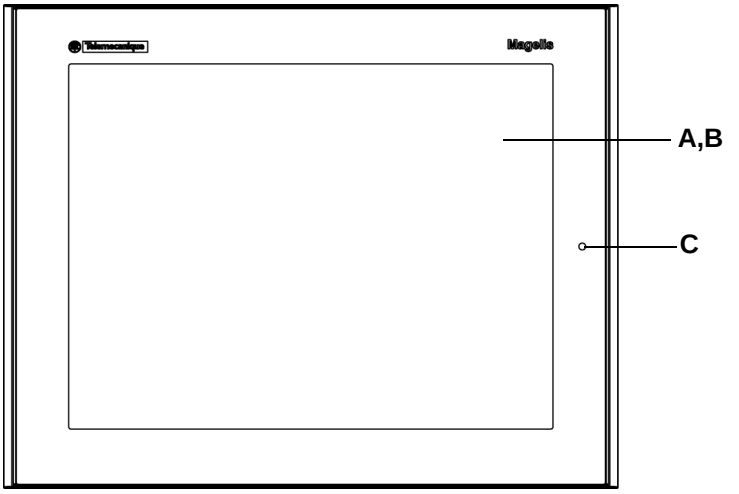
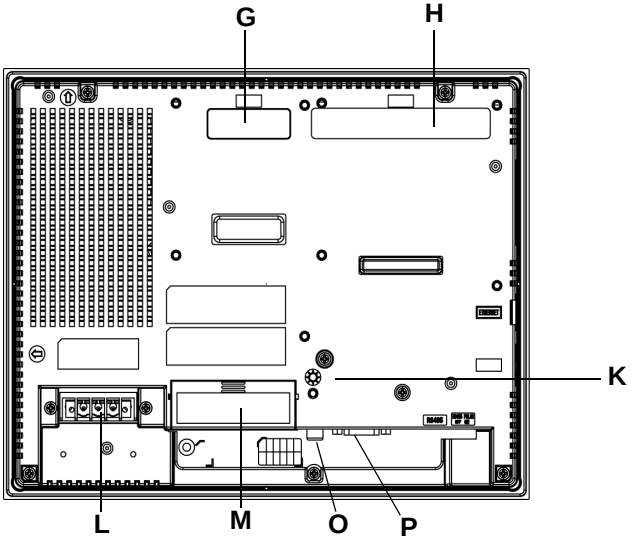
Part	Description
E	CF card access lamp: ● Green ON: the CF Card is inserted and the Cover is closed, or the CF Card is being accessed. ● Green OFF: the CF Card is not inserted or is not being accessed.
F	Auxiliary input/output/voice output interface (AUX). This interface is used for: ● External reset ● Alarm output ● Buzzer output ● Sound output
G	Audio input interface (L-IN/MIC): this interface is used to connect a microphone (use mini jack connector of 3.5 mm) (XBT GT4340 only).
H	Video input interface: this interface is used to connect a video camera NTSC (59.9 Hz)/PAL (5 0Hz). Use with the RCA convertor 75 Ω) (XBT GT4340 only).
I	Power plug connector: the power cable is connected through this connector.
J	Serial interface COM1: connects a RS232C or RS422-485 (serial) cable (from the host/PLC) to the XBT GT (COM1 port).
K	Serial interface COM2: connects a RS485 (serial) cable (from the PLC) to the XBT GT (COM2 port).
L	RS485 line polarization selector switch.
M	Ethernet interface (10Base-T/100Base-TX) (except XBT GT2110/2220): RJ-45 connector is used, and the LED turns ON or OFF to indicate the current status. ● Green ON: data transmission available. ● Green OFF: no connection or subsequent transmission failure. ● Yellow ON: data transmission is occurring. ● Yellow OFF: no data transmission.
N	USB host interface (USB1.1): connects a data transfer cable or peripherals or PLC USB terminal port to XBT GT.
O	CF card cover: covers the CF card slot. This cover must be closed when accessing to the CF card (see *p. 90*).

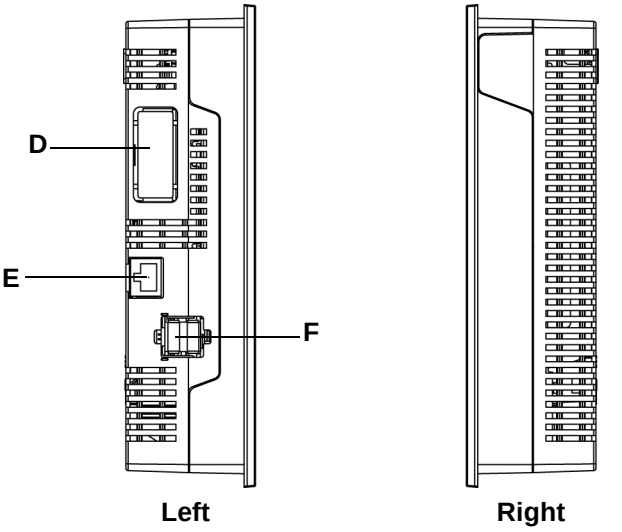
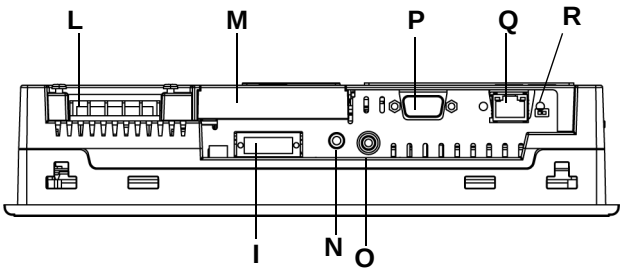
XBT GT5230

Side	XBT GT5230 Part Identification
Front	
Rear	

Side	XBT GT5230 Part Identification
Left and Right	
CF Card Cover Open	

XBT GT5330 and 5340 Parts Identification

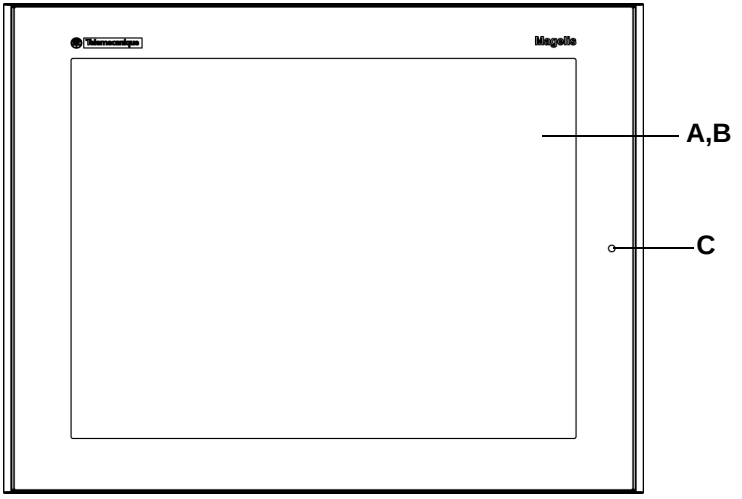
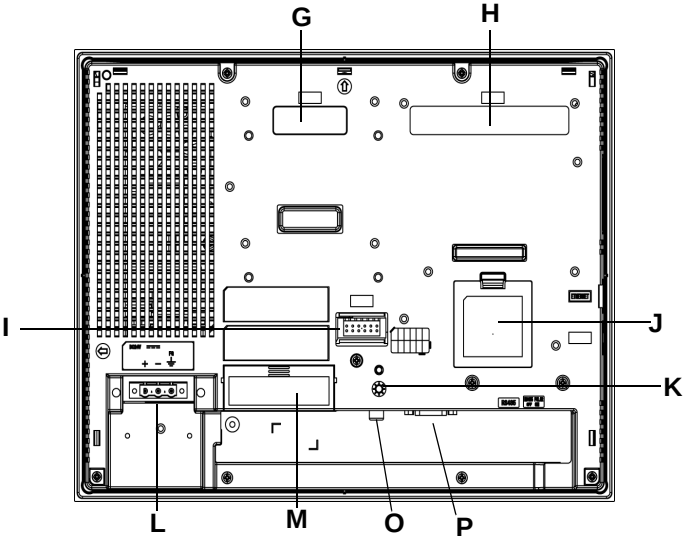
Side	XBT GT5330 and 5340 Part Identification
Front	
Rear	

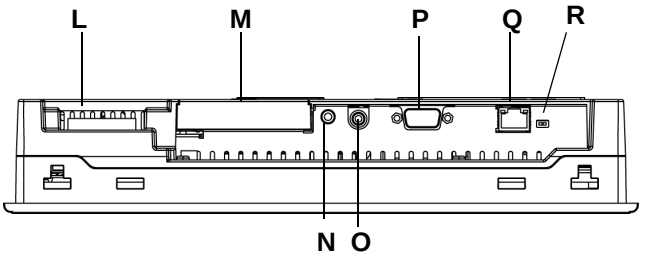
Side	XBT GT5330 and 5340 Part Identification
Left and Right	
CF Card Cover Open	

Part	Description
A	Display: displays user created screens and remote equipment variables.
B	Touch panel: performs screen change operations and sends data to the host PLC.
C	Status LED: ● Green (steady): normal operation (power is ON) or OFFLINE operation. ● Orange (steady): backlight burnout is detected. ● Orange (blinking): during software startup. ● Red (steady): when power is turned ON ● Not lit: power is OFF

Part	Description
D	Expansion unit interface: connects expansion units with communication features.
E	Ethernet interface (LAN) (10Base-T/100Base-TX): RJ-45 connector is used, and the LED turns ON or OFF to indicate the current status. ● Green ON: data transmission available. ● Green OFF: no connection or subsequent transmission failure. ● Yellow ON: data transmission is occurring. ● Yellow OFF: no data transmission.
F	USB host interface (USB1.1) (x2): connects a data transfer cable, USB-compatible printer, peripherals, or a PLC USB terminal port to the XBT GT. The maximum communication distance is 5 m.
G	Expansion unit interface (EXT1): connects expansion units with communication features.
H	Expansion unit interface (EXT2): extends a display function
I	Auxiliary input/output/voice output interface (AUX): this interface is used for: ● External reset ● Alarm output ● Buzzer output ● Sound output
J	Expansion memory interface cover
K	CF card access lamp: ● Green ON: the CF card is inserted and the cover is closed, or the CF card is being accessed. ● Green OFF: the CF card is not inserted or is not being accessed.
L	Power plug connector: power cable is connected to this connector.
M	CF card cover: the CF card I/F and DIP Switches are located in the CF card cover (they are accessible when the card cover is open). This cover must be closed when accessing the CF card (see *p. 90*.)
N	Audio input interface (L-IN/MIC): this interface is used to connect a microphone (use mini jack connector of 3.5 mm) (XBT GT5340 only).
O	Video input interface: this interface is used to connect a video camera NTSC (59.9 Hz)/PAL (50 Hz). Use with the RCA convertor 75 Ω) (XBT GT5340 only).
P	Serial interface COM1: connects a RS232C or RS422-485 (serial) cable (from the host PLC) to the XBT GT (COM1 port).
Q	Serial interface COM2: connects a RS485 (serial) cable (from the host PLC) to the XBT GT (COM2 port).
R	RS485 line polarization selector switch

XBT GT6000 Series

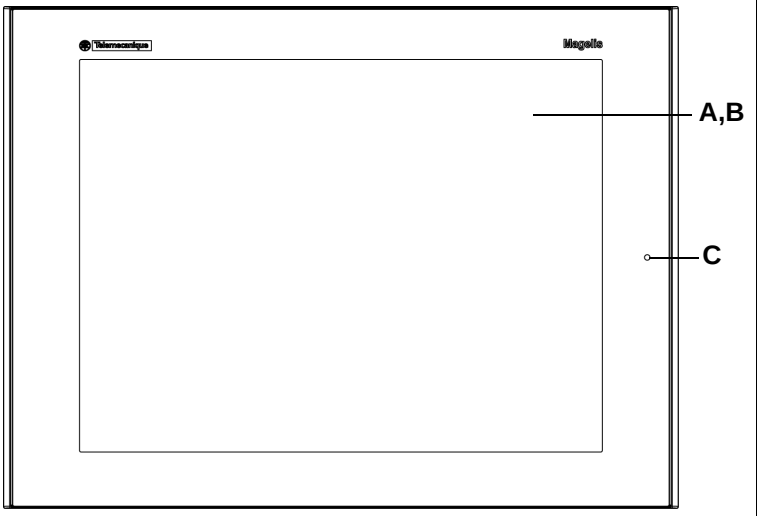
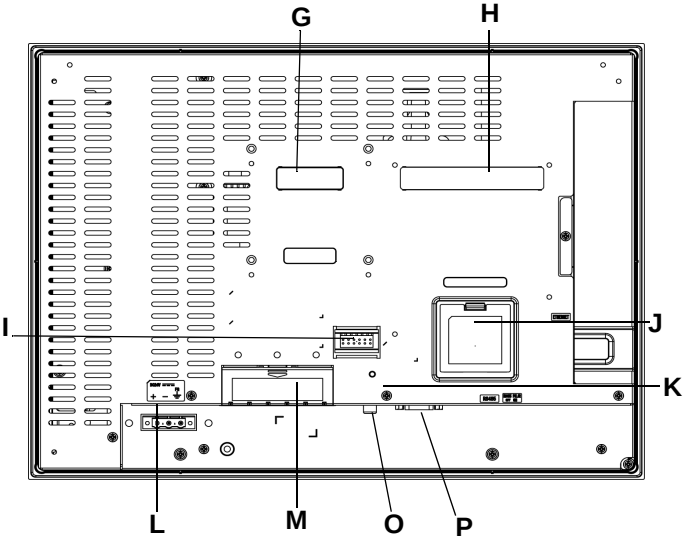
Side	XBT GT6000 series Part Identification
Front	
Rear	
Left and Right	

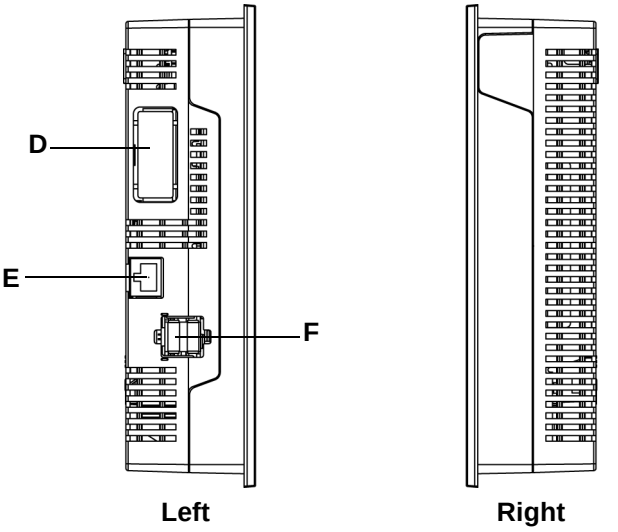
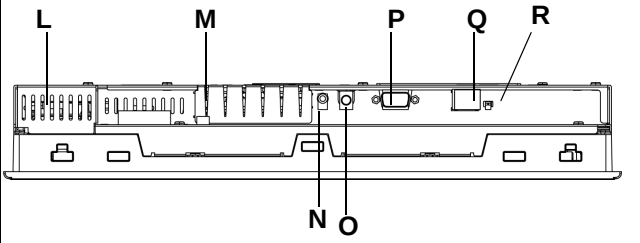
Side	XBT GT6000 series Part Identification
CF Card Cover Open	

Part	Description
A	Display: displays user created screens and remote equipment variables.
B	Touch panel: performs screen change operations and sends data to the host PLC.
C	Status LED: ● Green (steady): normal operation (power is ON) or OFFLINE operation. ● Orange (steady): backlight burnout is detected. ● Orange (blinking): during software startup. ● Red (steady): when power is turned ON ● Not lit: power is OFF
D	Expansion unit interface: connects expansion units with communication features.
E	Ethernet interface (LAN) (10Base-T/100Base-TX): RJ-45 connector is used, and the LED turns ON or OFF to indicate the current status. ● Green ON: data transmission available. ● Green OFF: no connection or subsequent transmission failure. ● Yellow ON: data transmission is occurring. ● Yellow OFF: no data transmission.
F	USB host interface (USB1.1) (x2): connects a data transfer cable, USB-compatible printer, peripherals, or a PLC USB terminal port to the XBT GT. The maximum communication distance is 5 m.
G	Expansion unit interface (EXT1): connects expansion units with communication features.
H	Expansion unit interface (EXT2): extends a display function
I	Auxiliary input/output/voice output interface (AUX): this interface is used for: ● External reset ● Alarm output ● Buzzer output ● Sound output

Part	Description
J	Expansion memory interface cover
K	CF card access lamp: ● Green ON: the CF card is inserted and the cover is closed, or the CF card is being accessed. ● Green OFF: the CF card is not inserted or is not being accessed.
L	Power plug connector: the power cable is connected through this connector.
M	CF card cover: the CF card I/F and DIP switches are located in the CF card cover (they are accessible when the card cover is open). This cover must be closed when accessing the CF card (see *p. 90*.)
N	Audio input interface (L-IN/MIC): this interface is used to connect a microphone (use mini jack connector of 3.5 mm) (XBT GT6340 only).
O	Video input interface: this interface is used to connect a video camera NTSC (59.9 Hz)/PAL (50 Hz). Use with the RCA convertor 75 Ω) (XBT GT6340 only).
P	Serial interface COM1: connects a RS232C or RS422-485 (serial) cable (from the host PLC) to the XBT GT (COM1 port).
Q	Serial interface COM2: connects a RS485 (serial) cable (from the host PLC) to the XBT GT (COM2 port).
R	RS485 line polarization selector switch

XBT GT7000 Series

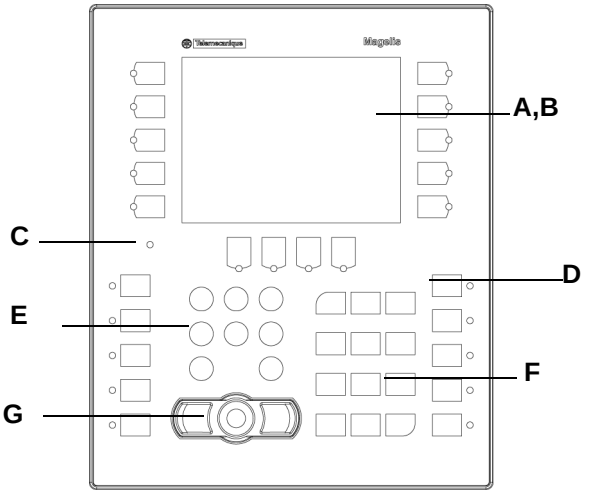
Side	XBT GT7000 series Part Identification
Front	
Rear	

Side	XBT GT7000 series Part Identification
Left and Right	
CF Card Cover	

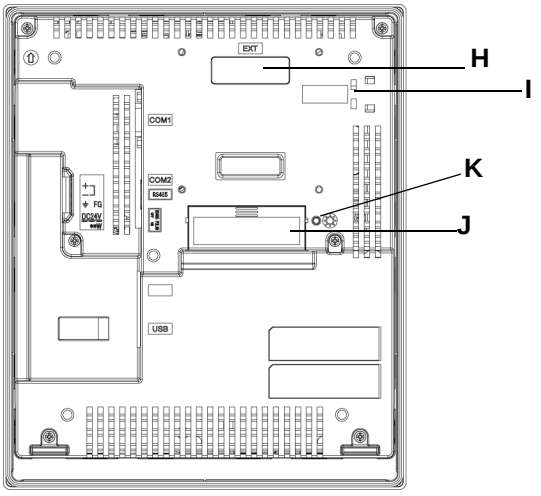
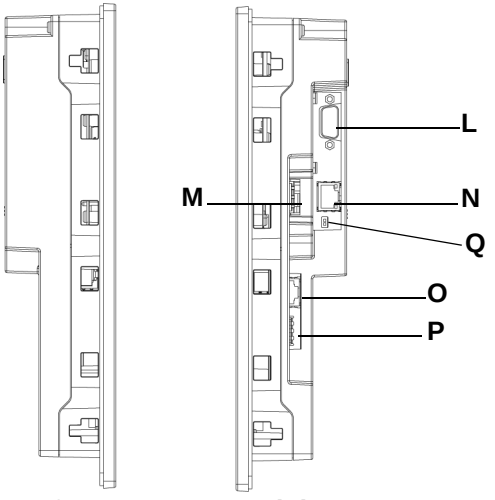
Part	Description
A	Display: displays user created screens and remote equipment variables.
B	Touch panel: performs screen change operations and sends data to the host PLC.
C	Status LED: ● Green (steady): normal operation (power is ON) or OFFLINE operation. ● Orange (steady): backlight burnout is detected. ● Orange (blinking): during software startup. ● Red (steady): when power is turned ON ● Not lit: power is OFF

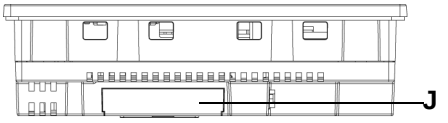
Part	Description
D	Expansion unit interface: connects expansion units with communication features.
E	Ethernet interface (LAN) (10Base-T/100Base-TX): RJ-45 connector is used, and the LED turns ON or OFF to indicate the current status. ● Green ON: data transmission available. ● Green OFF: no connection or subsequent transmission failure. ● Yellow ON: data transmission is occurring. ● Yellow OFF: no data transmission.
F	USB host interface (USB1.1) (x2): connects a data transfer cable, USB-compatible printer, peripherals, or a PLC USB terminal port to the XBT GT. The maximum communication distance is 5 m.
G	Expansion unit interface (EXT1): connects expansion units with communication features.
H	Expansion unit interface (EXT1): extends a display function
I	Auxiliary input/output/voice output interface (AUX): this interface is used for: ● External reset ● Alarm output ● Buzzer output ● Sound output
J	Expansion memory interface cover
K	CF card access lamp: ● Green ON: the CF card is inserted and the cover is closed, or the CF card is being accessed. ● Green OFF: the CF card is not inserted or is not being accessed.
L	Power plug connector: power cable is connected to this connector.
M	CF card cover: the CF card I/F and DIP switches are located in the CF card cover (they are accessible when the card cover is open). This cover must be closed when accessing the CF card (see *p. 90*.)
N	Audio input interface (L-IN/MIC): this interface is used to connect a microphone (use mini jack connector of 3.5 mm) (XBT GT7340 only).
O	Video input interface: this interface is used to connect a video camera NTSC (59.9 Hz)/PAL (50 Hz). Use with the RCA convertor 75 Ω) (XBT GT7340 only).
P	Serial interface COM1: connects a RS232C or RS422-485 (serial) cable (from the host PLC) to the XBT GT (COM1 port).
Q	Serial interface COM2: connects a RS485 (serial) cable (from the host PLC) to the XBT GT (COM2 port).
R	RS485 line polarization selector switch.

XBT GK2000 Series

Side	XBT GK2000 series Part Identification
Front	

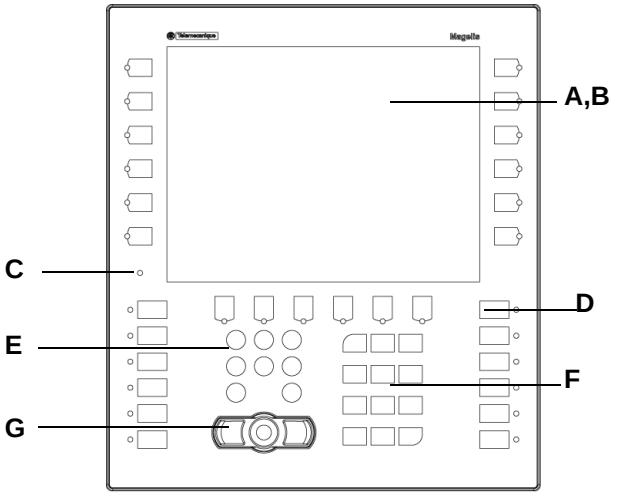
Part	Description
A	Display: displays user created screens and remote equipment variables.
B	Touch panel: performs screen change operations and sends data to the host PLC
C	Status LED: ● Green (steady): normal operation (power is ON) or OFFLINE operation. ● Orange (steady): backlight burnout is detected. ● Orange (blinking): during software startup. ● Not lit: power is OFF
D	Function keys (R1 to R10, R21 to R24, F1 to F10): used for function keys.
E	System keypad: controls various system operations.
F	Alphanumeric keypad: enables the user to input characters or numeric values.
G	Mouse pointer: the pointer moves the cursor and the buttons activate objects and enable data inputs.

Side	XBT GK2000 series Part Identification
Rear	
Left and Right	

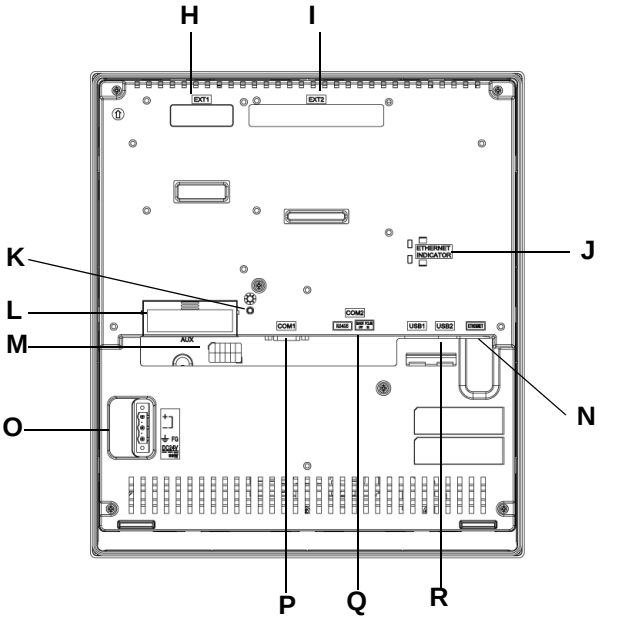
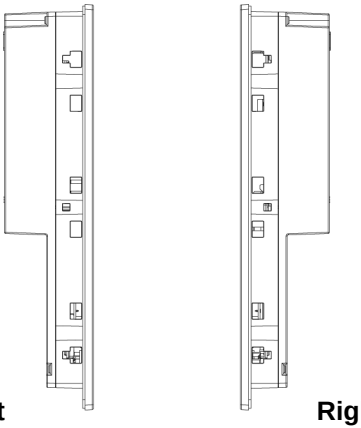
Side	XBT GK2000 series Part Identification
CF Card Cover Open	

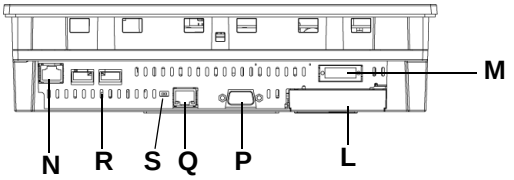
Part	Description
H	Expansion unit interface (EXT1): connects expansion units with communication features.
I	Ethernet indicator: the LED turns ON or OFF to indicate the current status. ● Green ON: Data transmission available. ● Green OFF: No connection or subsequent transmission failure. ● Yellow ON: Data transmission is occurring. ● Yellow OFF: No data transmission.
J	CF card cover: the CF card socket and DIP Switches are located under the CF card cover (they are accessible when the card cover is open). This cover must be closed when accessing the CF card (see *p. 90*.)
K	CF card access lamp: ● Green ON: the CF card is inserted and the cover is closed, or the CF card is being accessed. ● Green OFF: the CF card is not inserted or is not being accessed.
L	Serial interface COM1: connects a RS232C or RS422-485 (Serial) cable (from the host PLC) to the unit (COM1 port).
M	Power input terminal block: connects the units power cable's input and ground wires to the unit.
N	Serial interface COM2: connects a RS485 (serial) cable (from the host PLC) to the unit (RS485 port).
O	Ethernet interface (10Base-T/100Base-TX) (except XBT GK2120): RJ-45 connector is used.
P	USB host interfaces (USB1.1): connects a data transfer cable, USB-compatible printer, peripherals, or a PLC USB terminal port to the XBT GK. The maximum communication distance is 5 m.
Q	RS485 line polarization selector switch.

XBT GK5330 Parts Identification

Side	XBT GK5330 Part Identification
Front	

Part	Description
A	Display: displays user created screens and remote equipment variables.
B	Touch panel: performs screen change operations and sends data to the host PLC
C	Status LED: ● Green (steady): normal operation (power is ON) or OFFLINE operation. ● Orange (steady): backlight burnout is detected. ● Orange (blinking): during software startup. ● Not lit: power is OFF
D	Function keys (R1 to R12, R21 to R26, F1 to F12): used for function keys.
E	System keypad: controls various system operations.
F	Alphanumeric keypad: enables the user to input characters or numeric values.
G	Mouse pointer: the pointer moves the cursor and the buttons activate objects and enable data inputs.

Side	XBT GK5330 Part Identification
Rear	
Left and Right	

Side	XBT GK5330 Part Identification
CF Card Cover Open	

Part	Description
H	Expansion unit interface (EXT1): connects expansion units with communication features.
I	Expansion unit interface (EXT2): connects expansion units with communication features.
J	Ethernet indicator: the LED turns ON or OFF to indicate the current status. ● Green ON: data transmission available. ● Green OFF: no connection or subsequent transmission failure. ● Yellow ON: data transmission is occurring. ● Yellow OFF: no data transmission.
K	CF card access lamp: ● Green ON: the CF card is inserted and the cover is closed, or the CF card is being accessed. ● Green OFF: the CF card is not inserted or is not being accessed.
L	CF card cover: The CF card socket and DIP switches are located in the CF card cover (they are accessible when the card cover is open). This cover must be closed when accessing the CF card (see *p. 90*.)
M	Auxiliary input/output/voice output interface (AUX): this interface is used for: ● External reset ● Alarm output ● Buzzer output ● Sound output
N	Ethernet interface (10Base-T/100Base-TX): RJ-45 connector is used.
O	Power input terminal block: connects the XBT GK power cable's input and ground wires to the unit.
P	Serial interface COM1: connects a RS232C or RS422 (serial) cable (from the host PLC) to the unit (COM1 port).
Q	Serial interface COM2: connects a RS485 (serial) cable (from the host PLC) to the unit (RS485 port).

Part	Description
R	USB host interfaces (USB1.1) (x2): connects a data transfer cable, USB-compatible printer, peripherals, or a PLC USB terminal port to the XBT GK. The maximum communication distance is 5 m.
S	RS485 line polarization selector switch.

Terminal Configuration Switches

Introduction

The RS485 line polarization selector switch is available on all XBT GT and XBT GK series.

The CF card DIP switches are available on:

- XBT GT2000 series
- XBT GT4000 series
- XBT GT5000 series
- XBT GT6000 series
- XBT GT7000 series
- XBT GK series

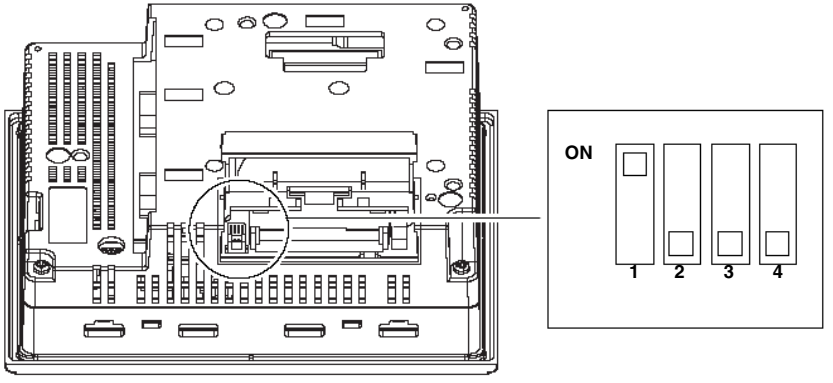
Parameters of RS485 Line Polarization Selector Switch

The following table explains the RS485 line polarization selector switch parameters:

Function	ON	OFF	Comment
Controls the polarization of the RS485 serial line.	RS485 serial line is polarized (620 Ω pull-up on D1 and 620 Ω pull-down on D0).	No polarization.	The polarization is activated if the Modbus protocol must be implemented and no other equipment performs polarization on the bus.

Location of CF Card DIP Switches

On XBT GK and XBT GT2000 and higher units (except XBT GT2110), the CF card DIP switches are located under the CF card cover.

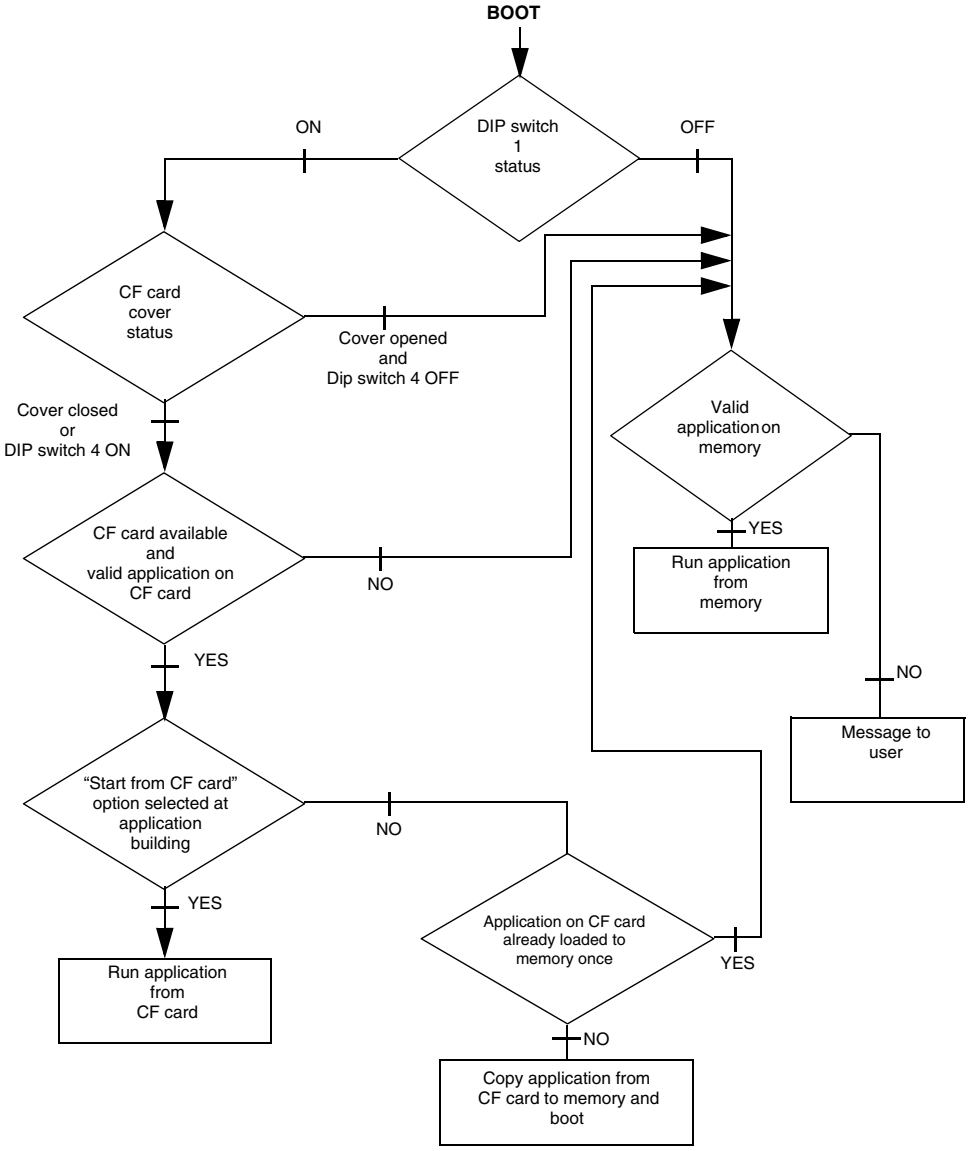


Parameter of CF Card DIP Switches

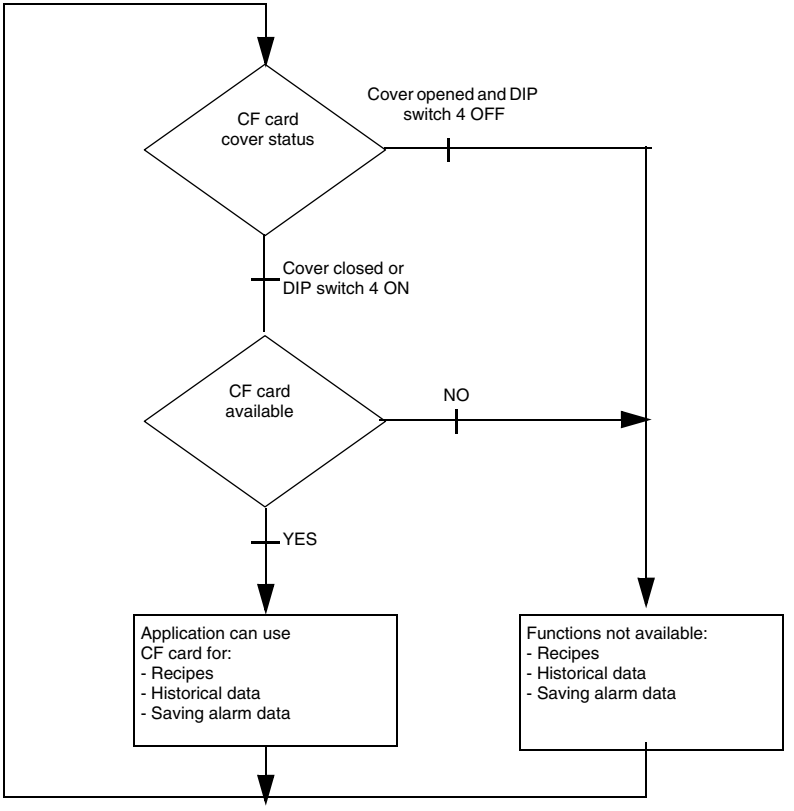
The following table explains CF card DIP switches parameters:

DIP Switch	Function	ON	OFF
1	-	-	-
2	-	-	-
3	Reserved	-	-
4	Controls the forced closing of the CF card cover (used when CF card cover is damaged).	Forced close enabled.	Forced close disabled.

The following diagram describes in detail the way the unit behaves in BOOT mode, based on the DIP switch settings and the CF card status:



The following diagram describes in detail the way the unit behaves in RUN mode, based on the DIP switch settings and the CF card status:



3.5 Dimensions

At a Glance

Overview

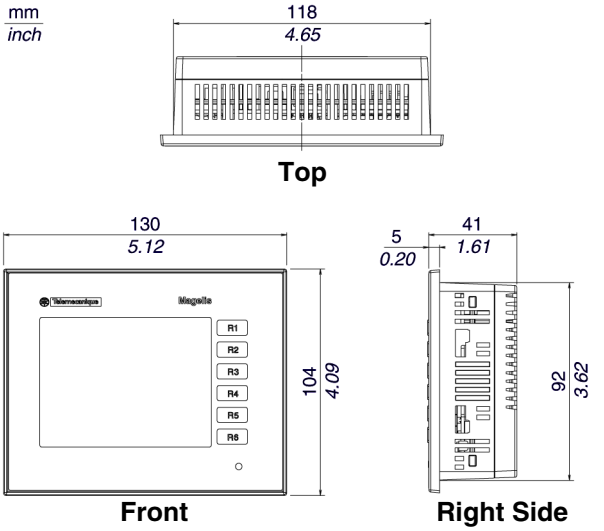
This section presents all the dimensions of XBT GT and XBT GK units.

What's in this Section?

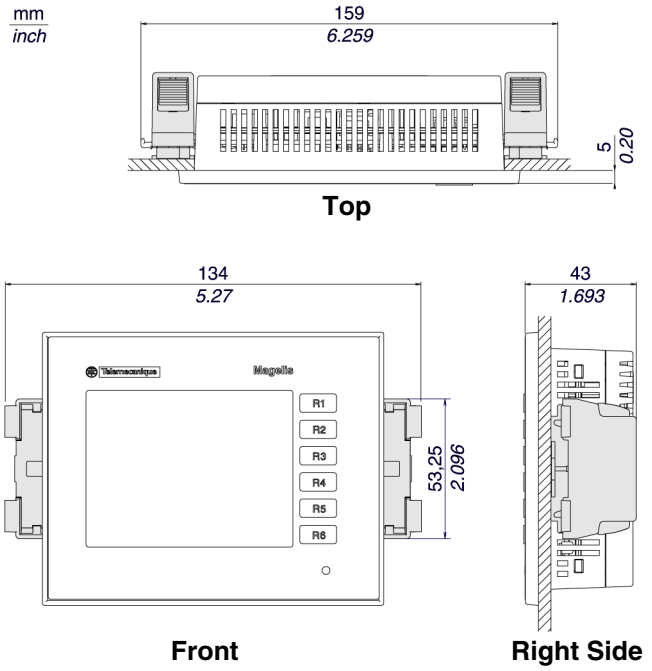
This section contains the following topics:

Topic	Page
XBT GT1000 Series Dimensions	95
XBT GT1005 Series Dimensions	98
XBT GT2000 Series Dimensions	101
XBT GT4000 Series Dimensions	104
XBT GT5000 Series Dimensions	108
XBT GT6000 Series Dimensions	116
XBT GT7000 Series Dimensions	120
XBT GK2000 Series Dimensions	124
XBT GK5330 Dimensions	128
Panel Cut Dimension	132
Installation Fasteners	134

XBT GT1000 Series Dimensions

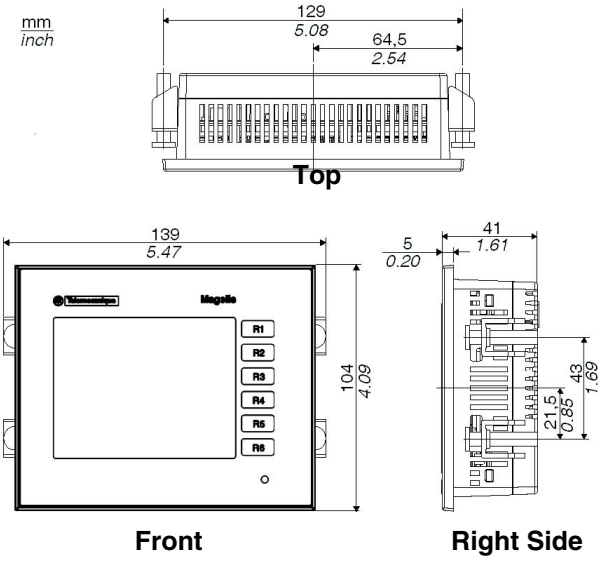


Installation with Spring Clips



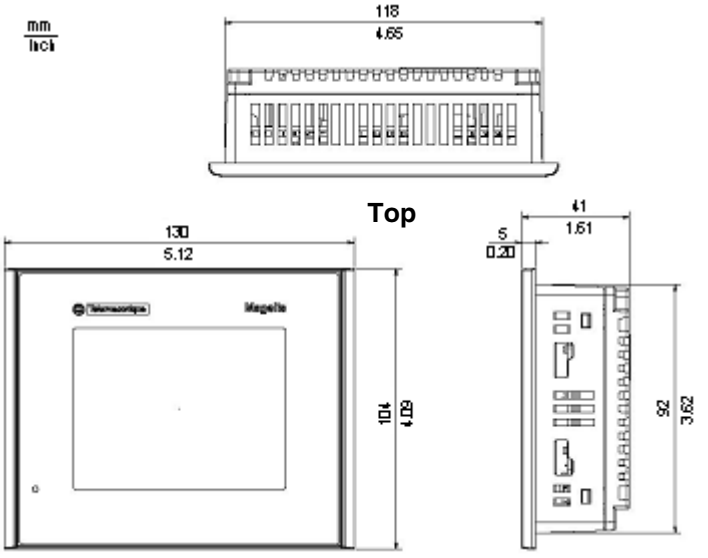
Note: XBT Z3002 spring clip fasteners must be ordered separately.

Installation with Screw Fasteners

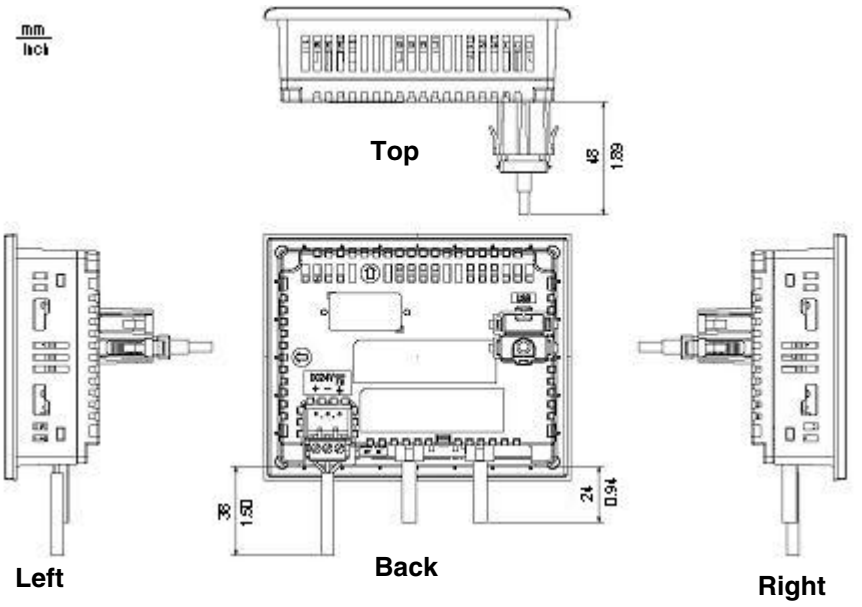


XBT GT1005 Series Dimensions

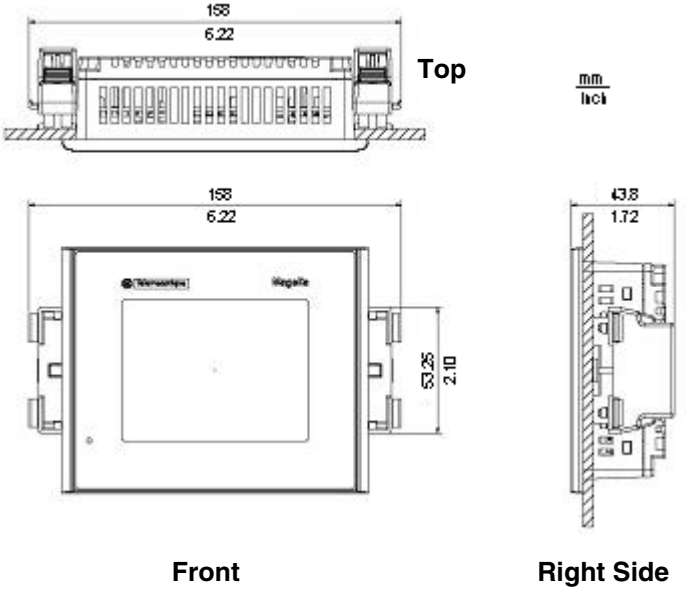
The following illustrations show the dimensions for the XBT GT1105, 1135, and 1335 panels.



Dimensions with Cables

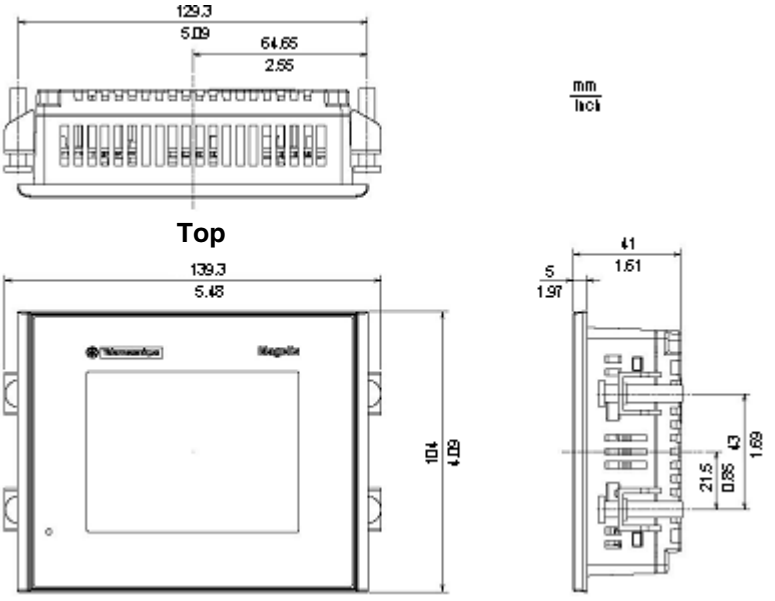


Installation with Spring Clips



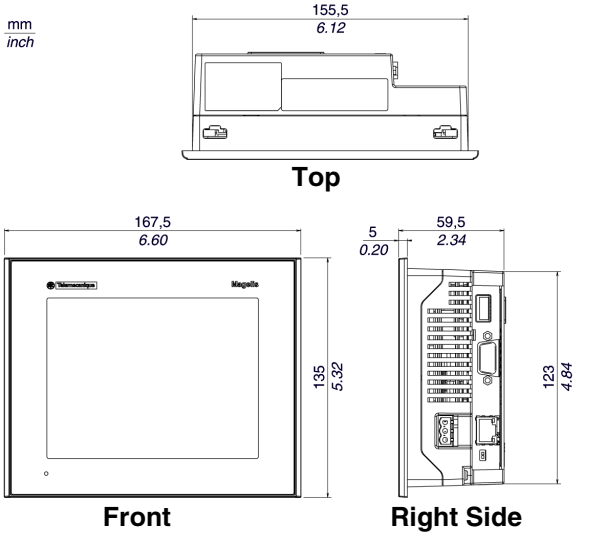
Note: XBT Z3002 spring clip fasteners must be ordered separately.

Installation with Screw Fasteners

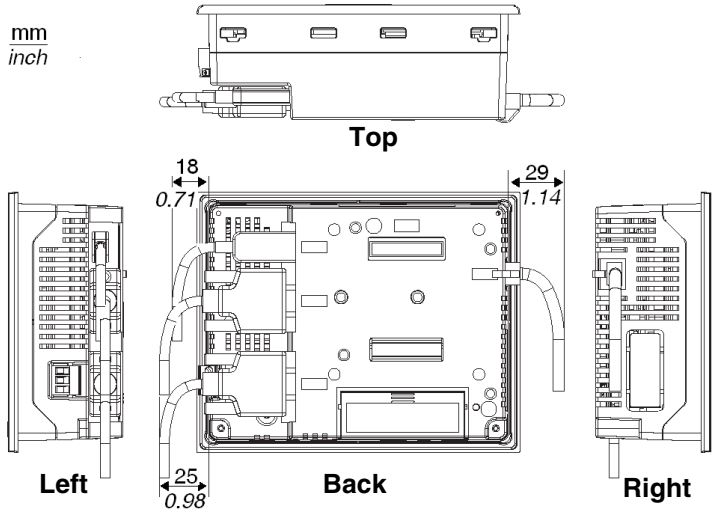


XBT GT2000 Series Dimensions

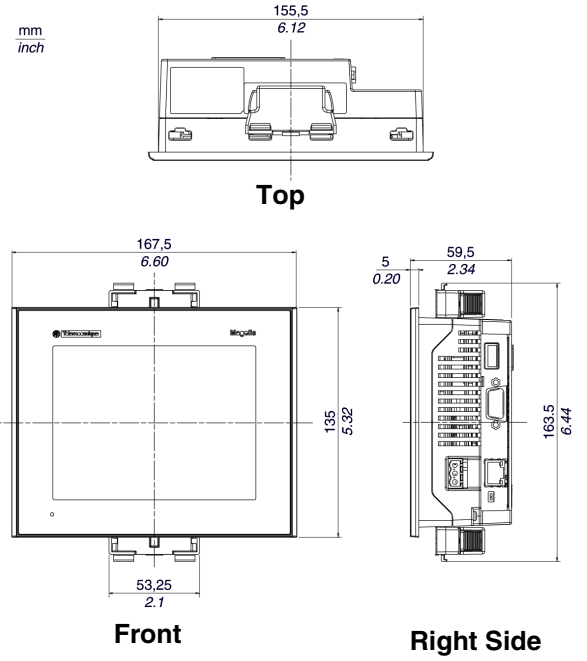
The following four illustrations show the dimensions for the XBT GT2110, 2120, 2130, 2220, a nd 2330 panels.



Dimensions with Cables

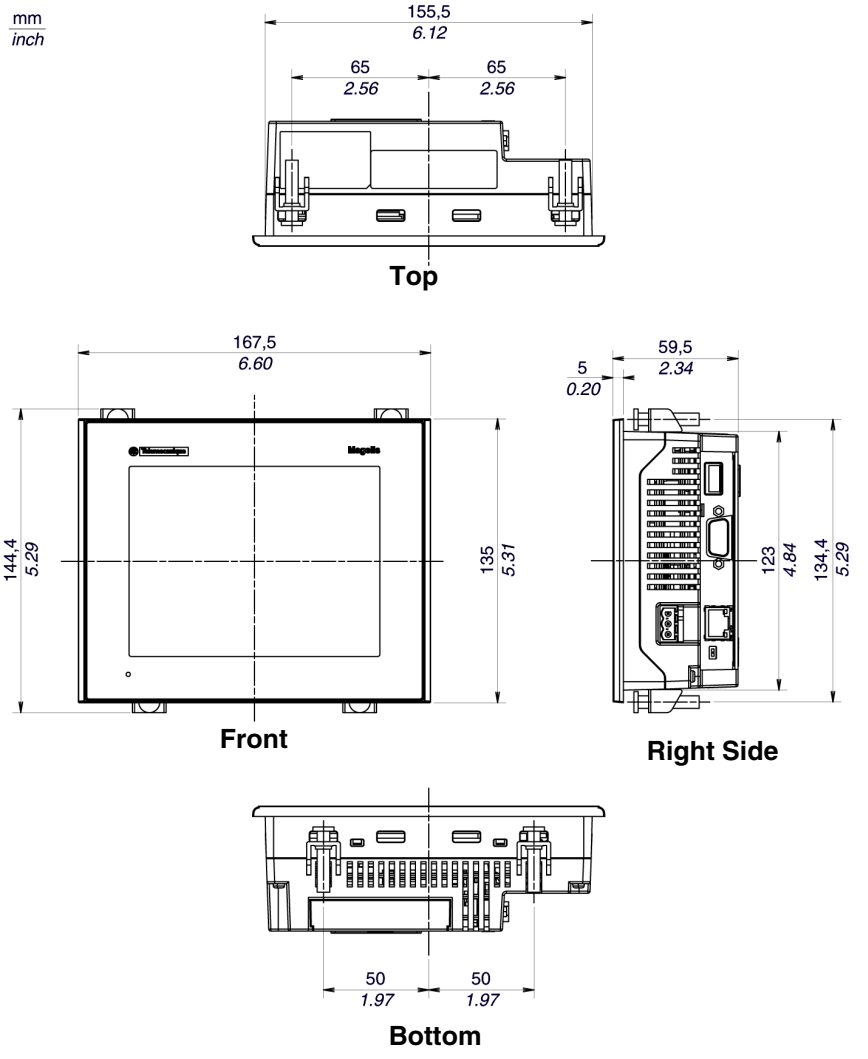


Installation with Spring Clips

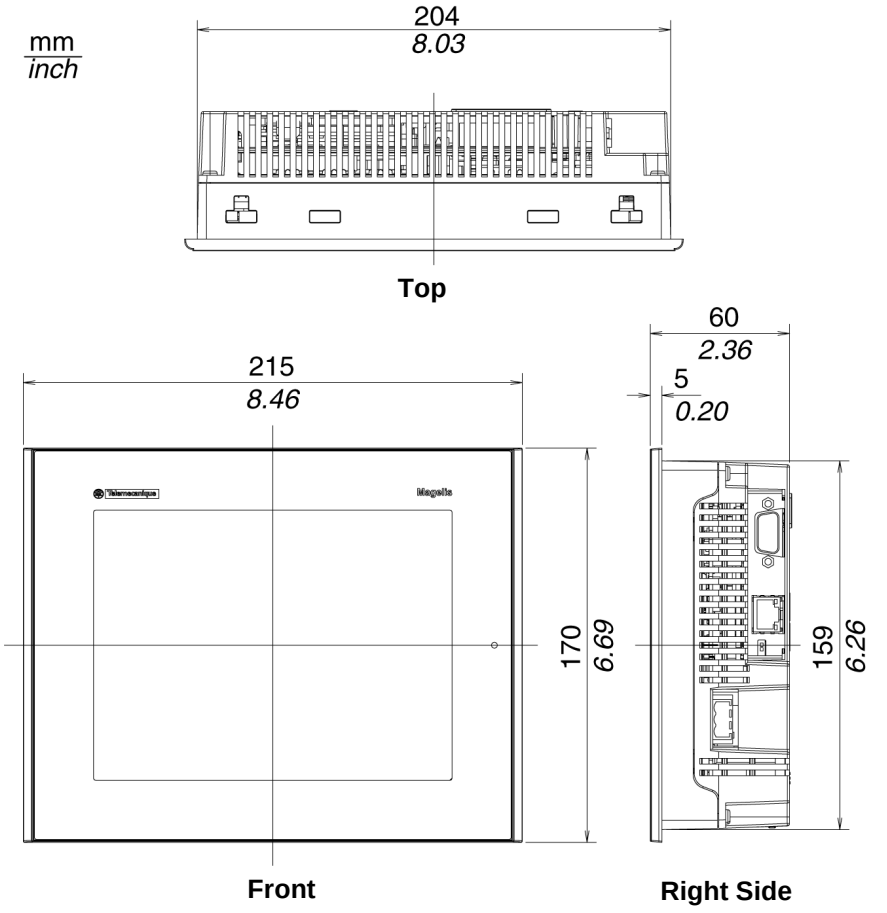


Note: Spring clip fasteners must be ordered separately (ref. XBT Z3002)

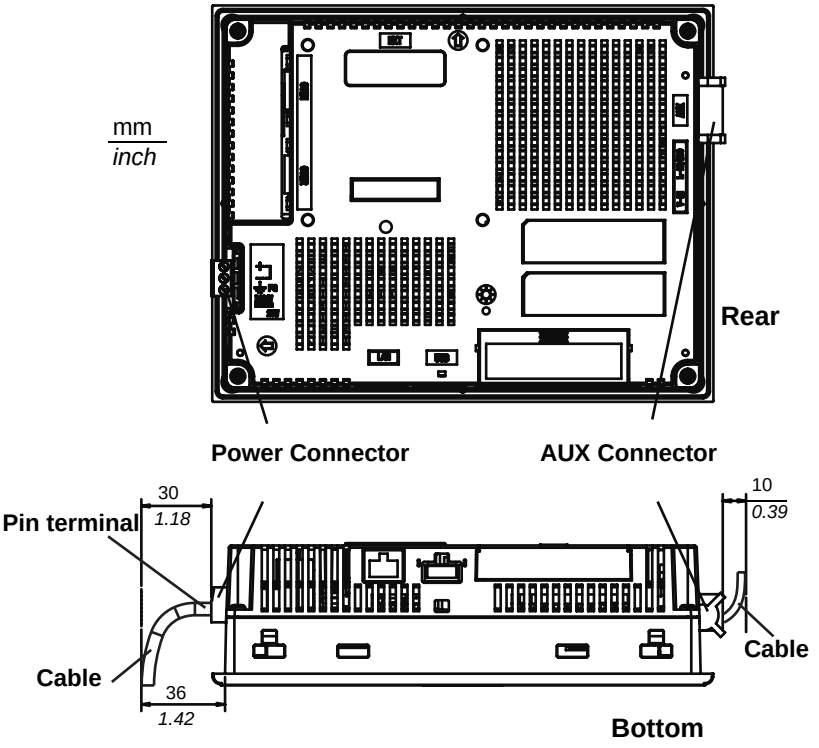
Installation with Screw Fasteners



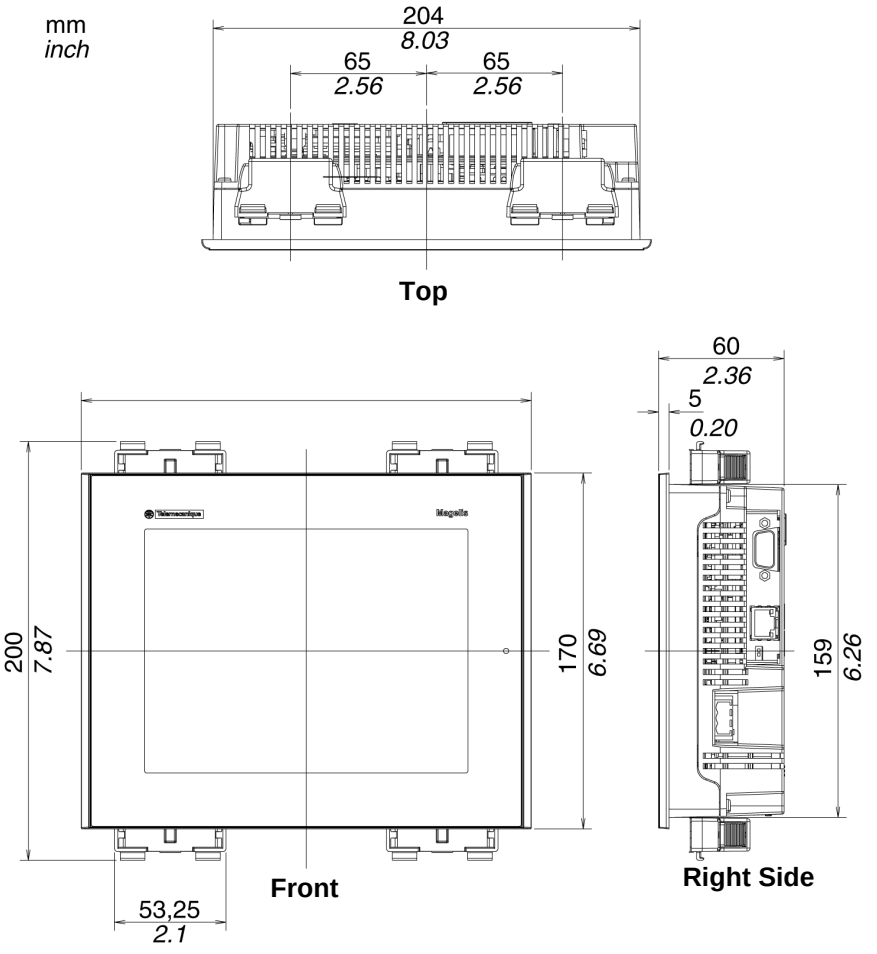
XBT GT4000 Series Dimensions



Dimensions with Cables

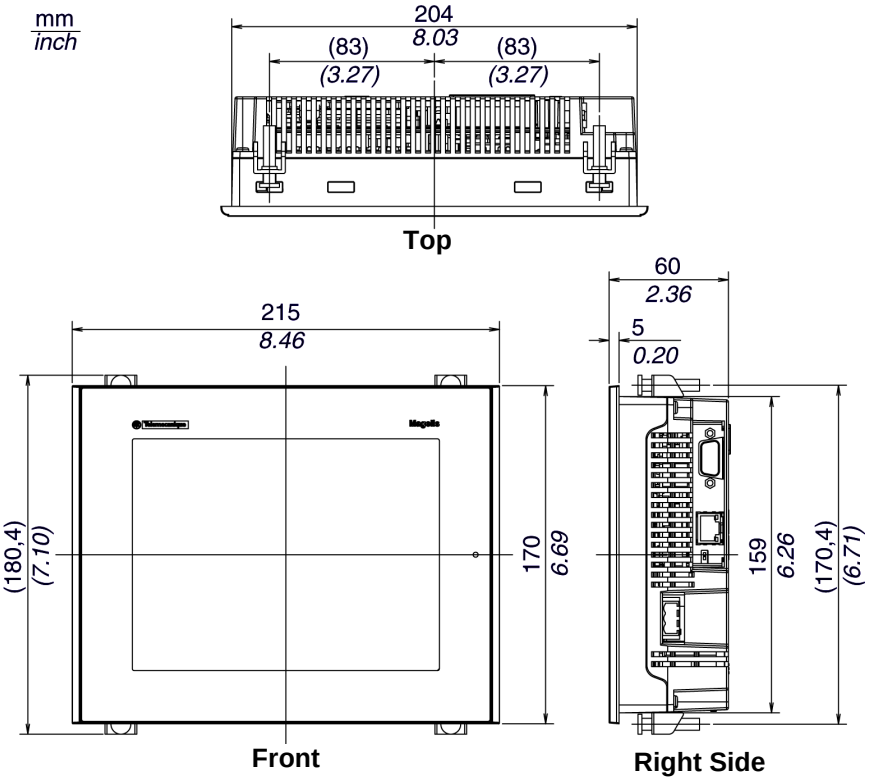


Installation with Spring Clips

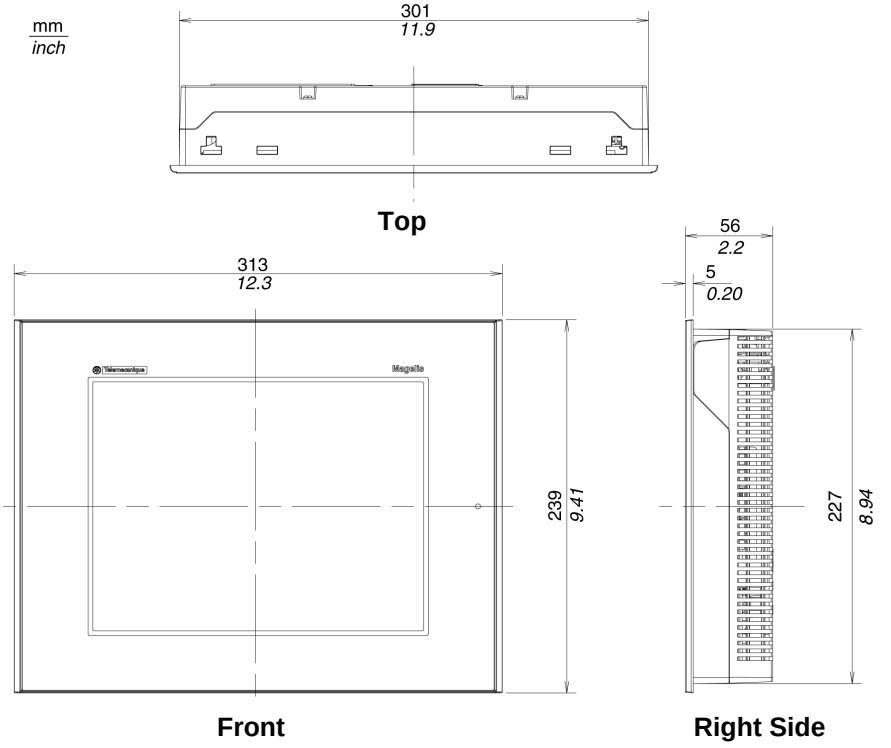


Note: XBT Z3002 spring clip fasteners must be ordered separately.

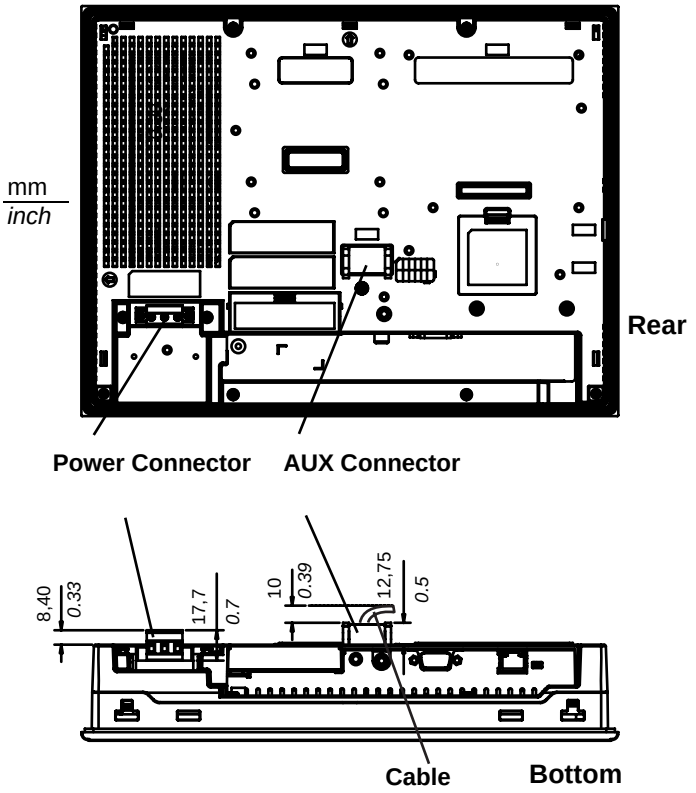
Installation with Screw Fasteners



XBT GT5000 Series Dimensions

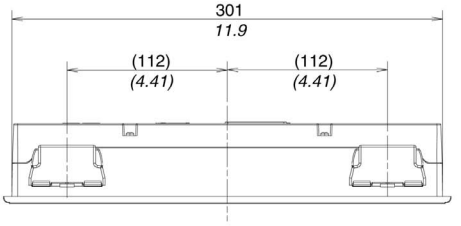


Dimensions of XBT GT5230 with Cables

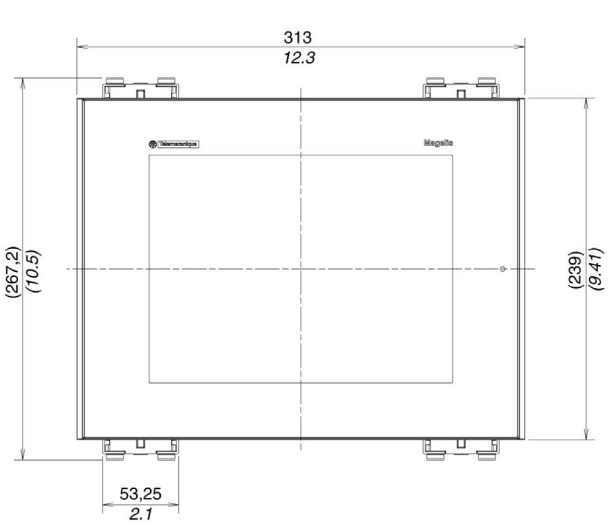


Installation of XBT GT5230 with Spring Clips

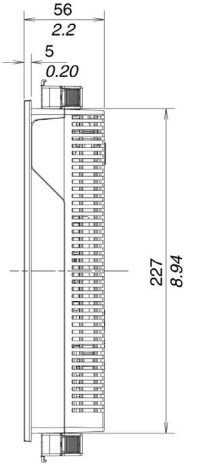
mm
inch



Top



Front

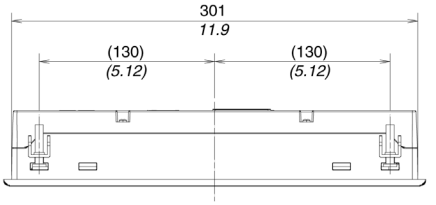


Right Side

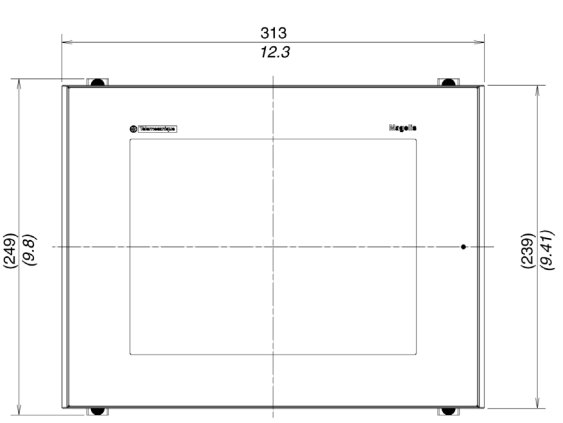
Note: XBT Z3002 spring clip fasteners must be ordered separately.

Installation of XBT GT5230 with Screw Fasteners

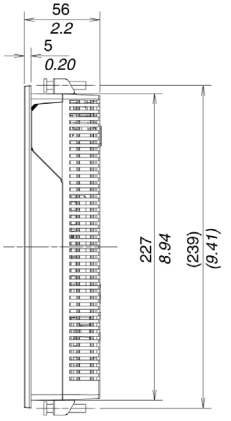
mm
inch



Top



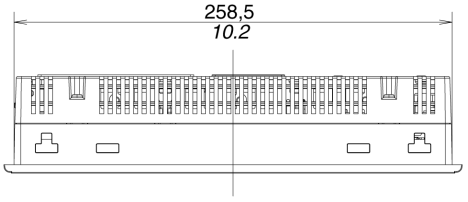
Front



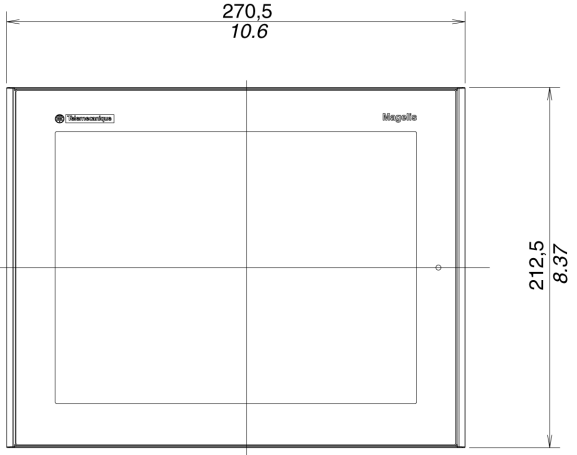
Right Side

Dimensions of XBT GT5330/ 5340

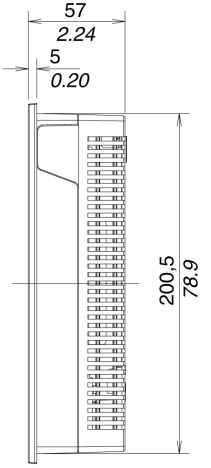
mm
inch



Top



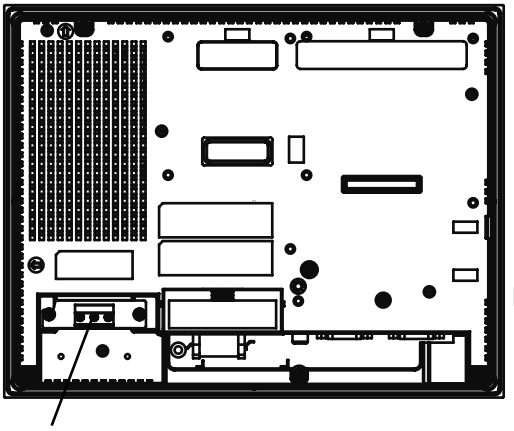
Front



Right Side

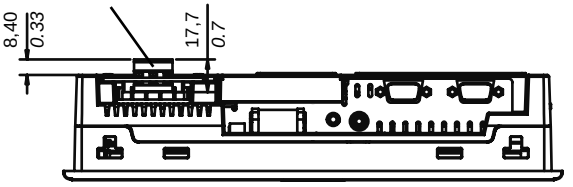
Dimensions of XBT GT5330/ 5340 with Cables

mm
inch



Rear

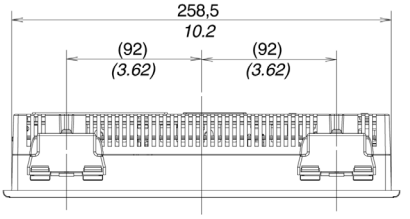
Power Connector



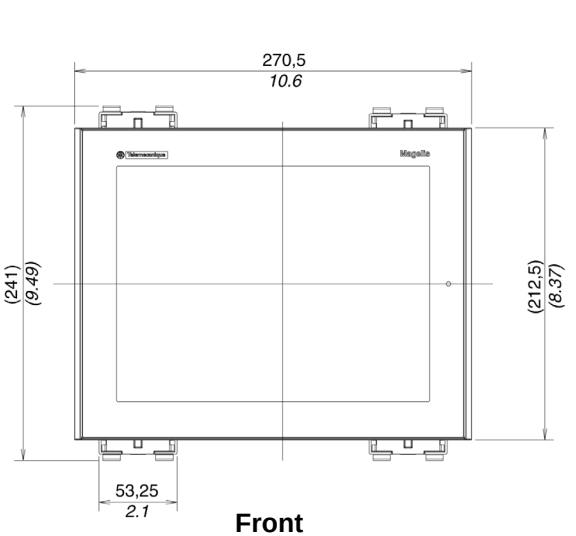
Bottom

Installation of XBT GT5330/ 5340 with Spring Clips

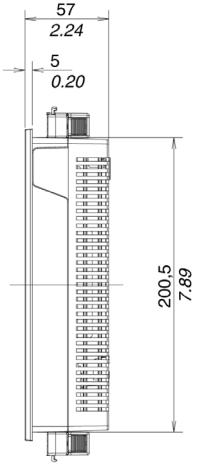
mm
inch



Top



Front

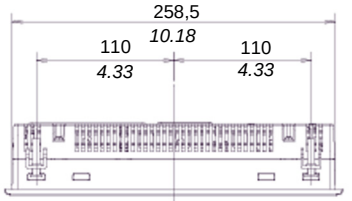


Right Side

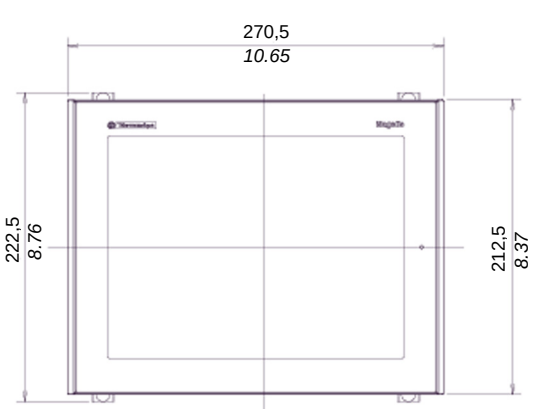
Note: XBT Z3002 spring clip fasteners must be ordered separately.

Installation of XBT GT5330/ 5340 with Screw Fasteners

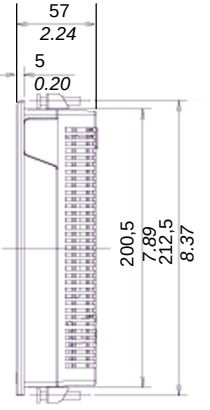
mm
inch



Top

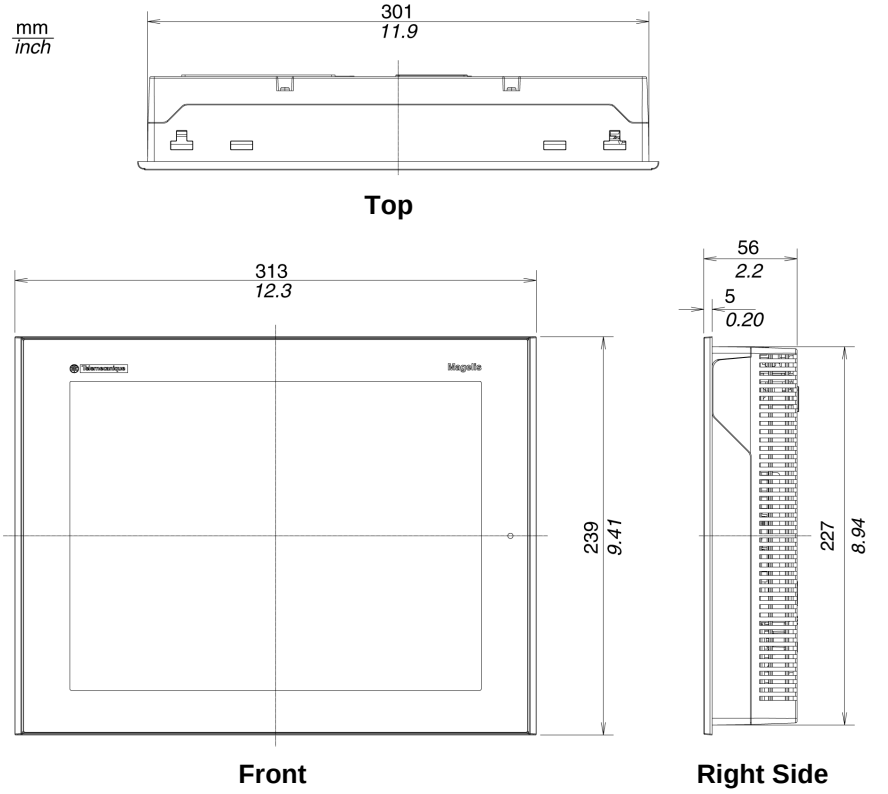


Front



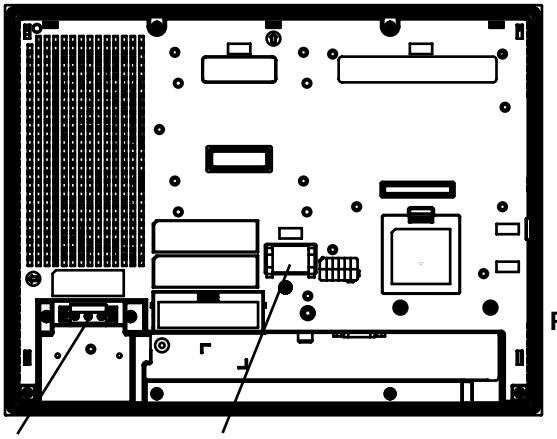
Right side

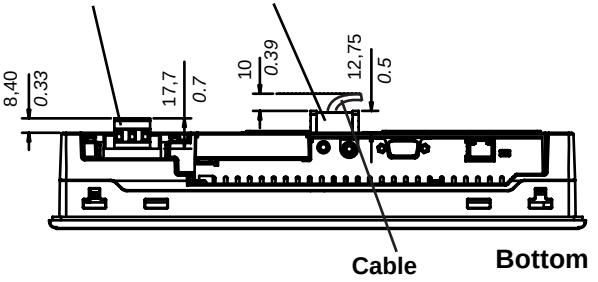
XBT GT6000 Series Dimensions



Dimensions with Cables

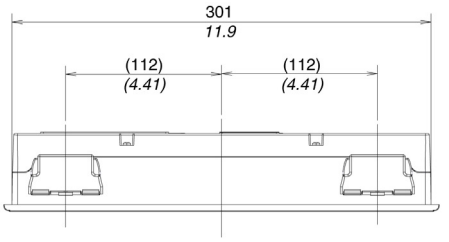
mm
inch



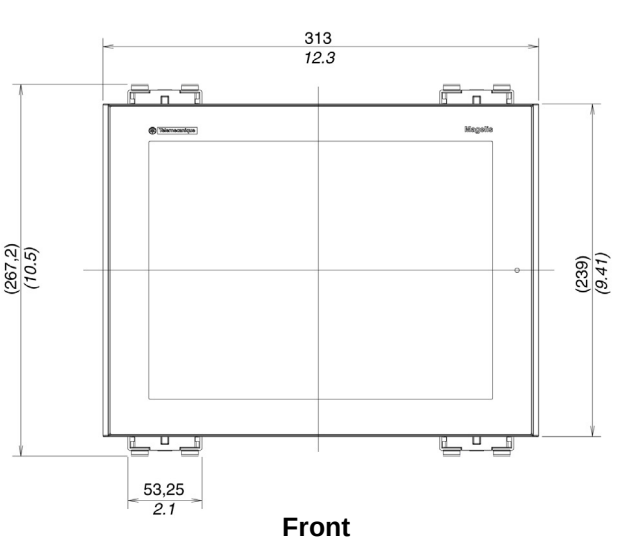


Installation with Spring Clips

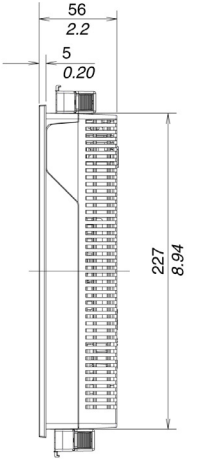
mm
inch



Top



Front

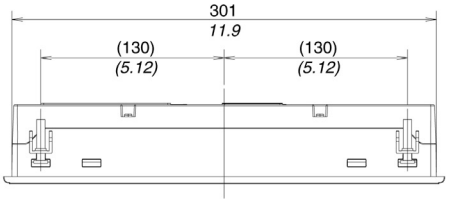


Right Side

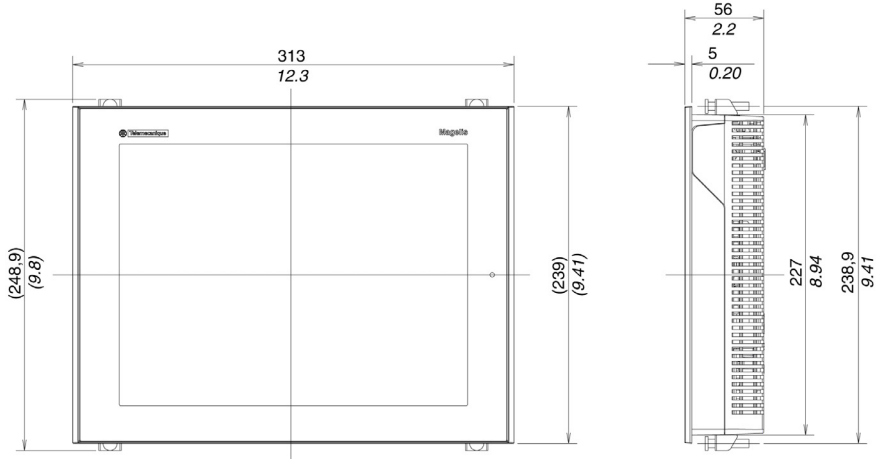
Note: XBT Z3002 spring clip fasteners must be ordered separately.

Installation with Screw Fasteners

mm
inch

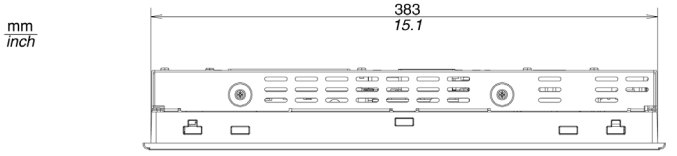


Top



Front **Right Side**

XBT GT7000 Series Dimensions



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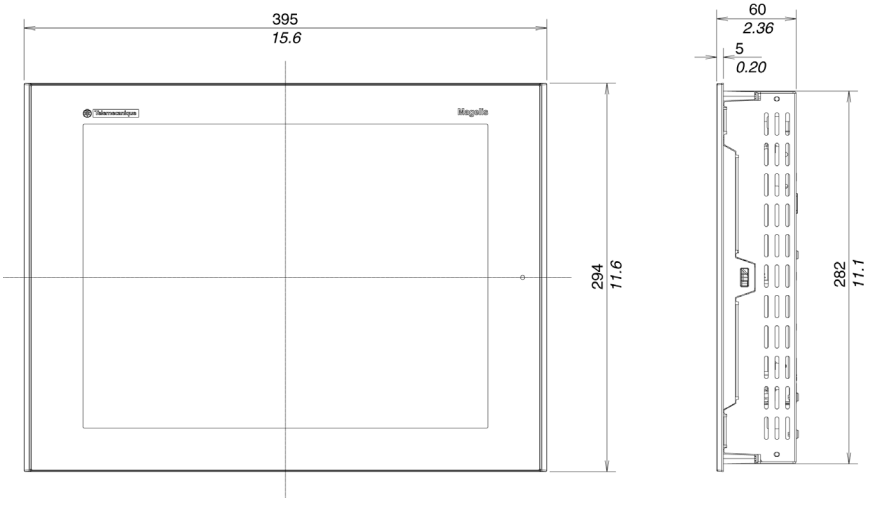
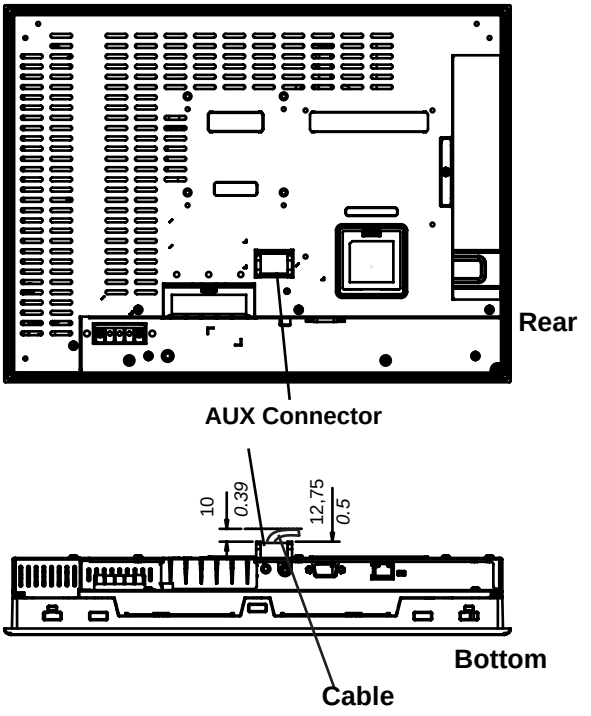


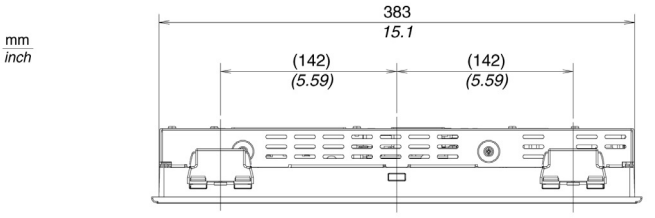
Front **Right Side**

Dimensions with Cables

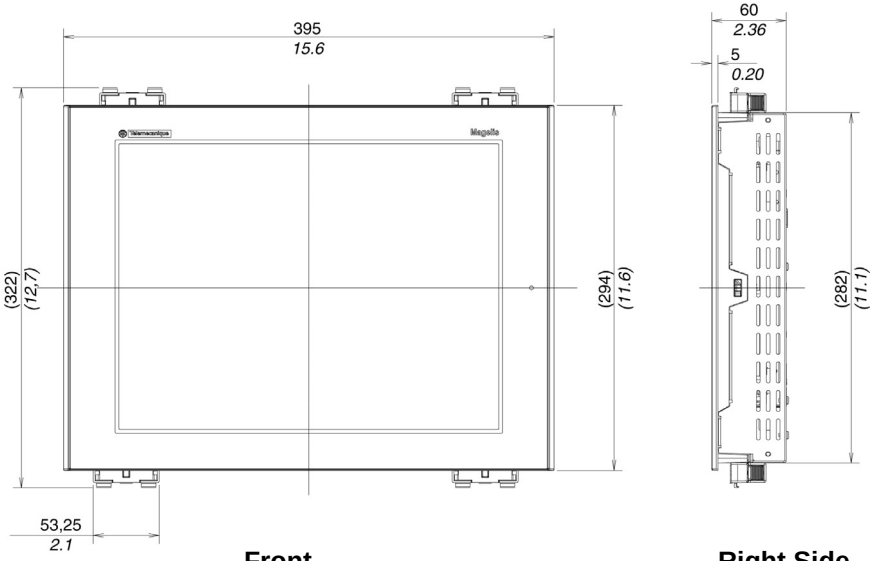
mm
inch



Installation with Spring Clips



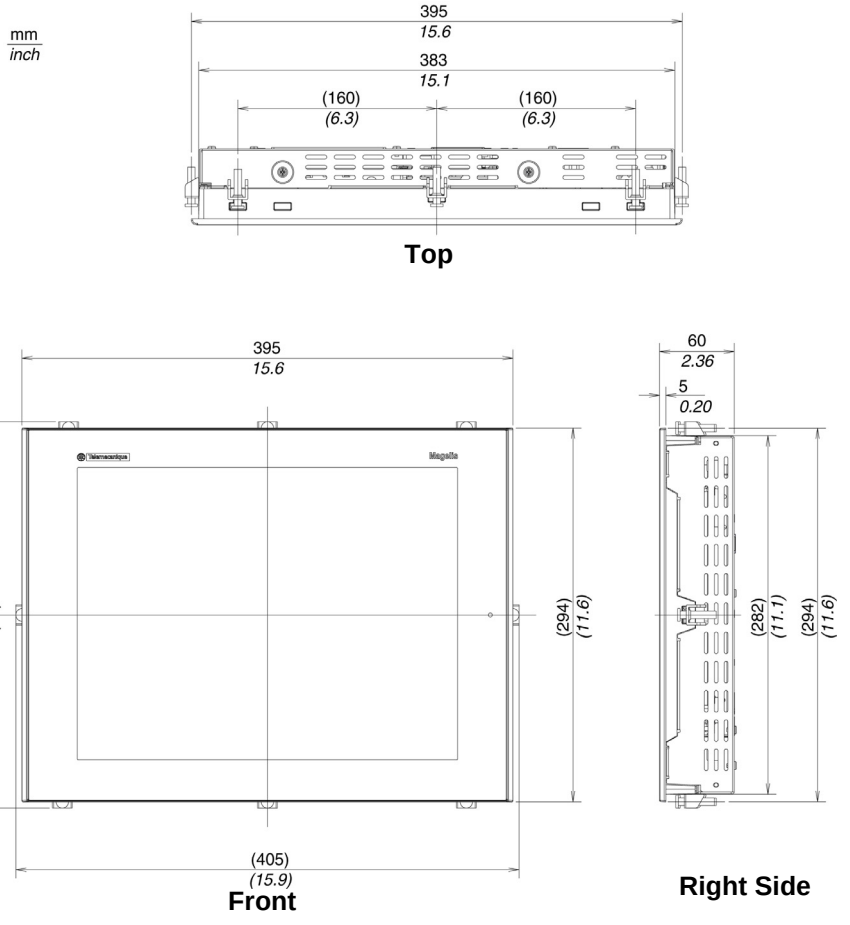
Top



Front **Right Side**

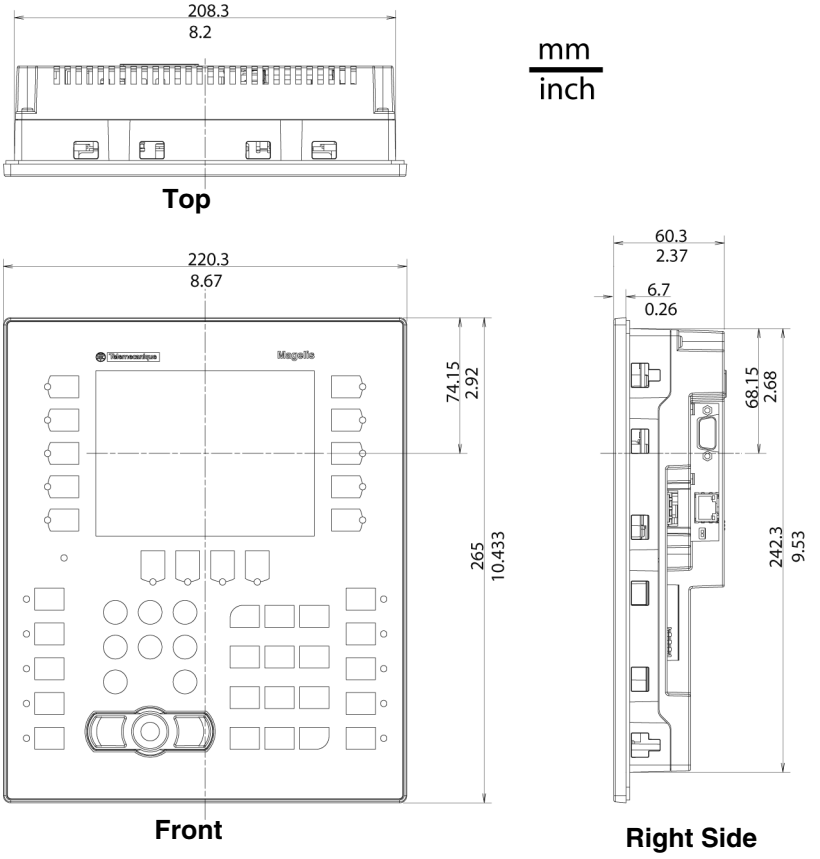
Note: XBT Z3002 spring clip fasteners have to be ordered separately.

Installation with Screw Fasteners



XBT GK2000 Series Dimensions

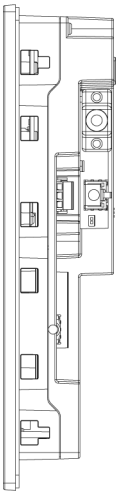
The following illustrations show dimensions for the XBT GK2120 and 2330 keypad panels.

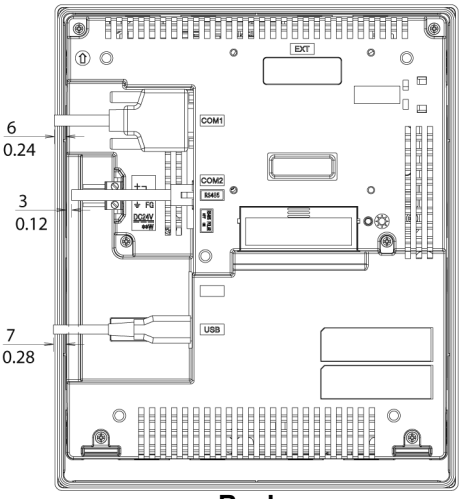


Dimensions with Cables

mm
inch

Left

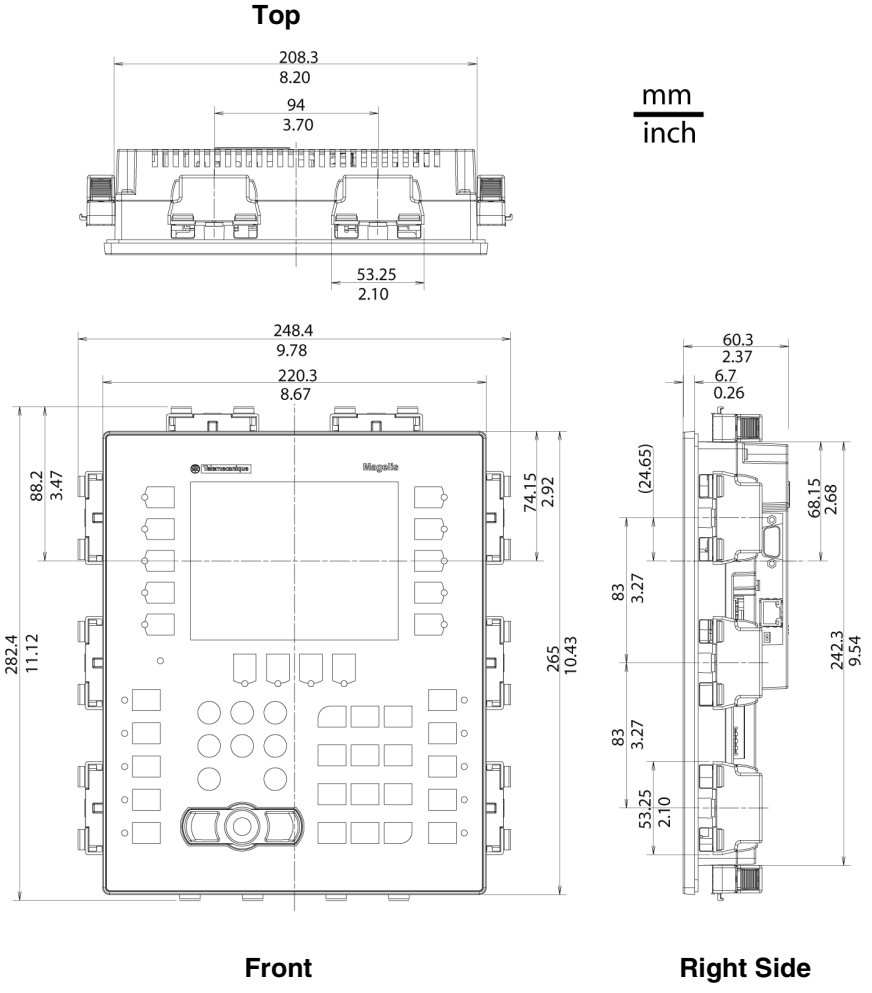




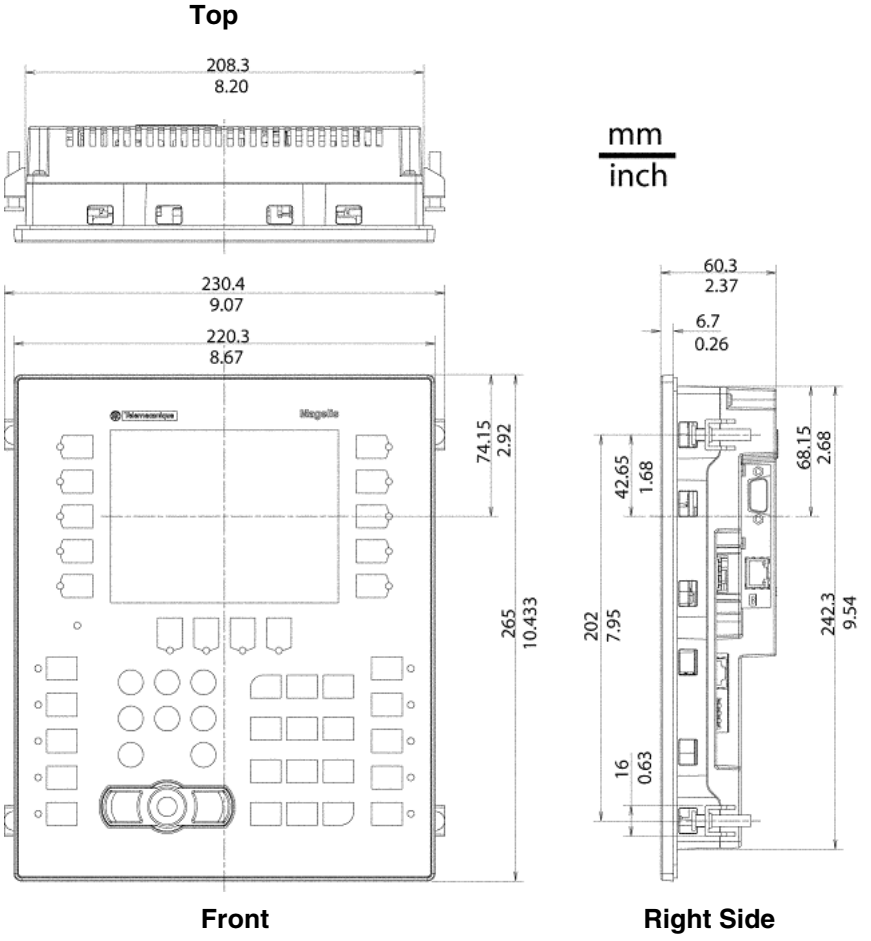
Back

Note: The XBT GK2120 does not support Ethernet.

Installation with Spring Clips



Installation with Screw Fasteners

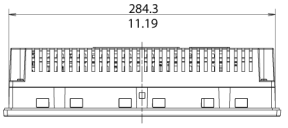


Note: XBT ZGFIX screw installation fasteners must be ordered separately.

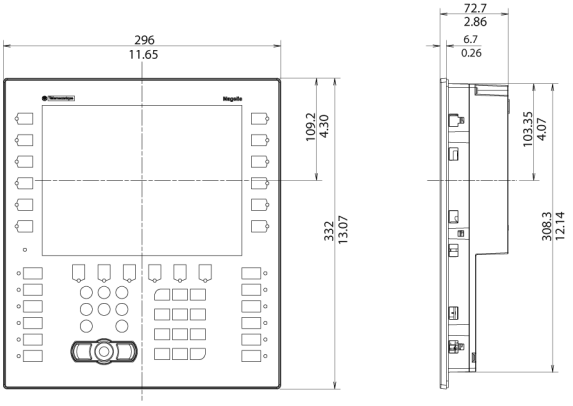
XBT GK5330 Dimensions

Dimensions of XBT GK5330

Top

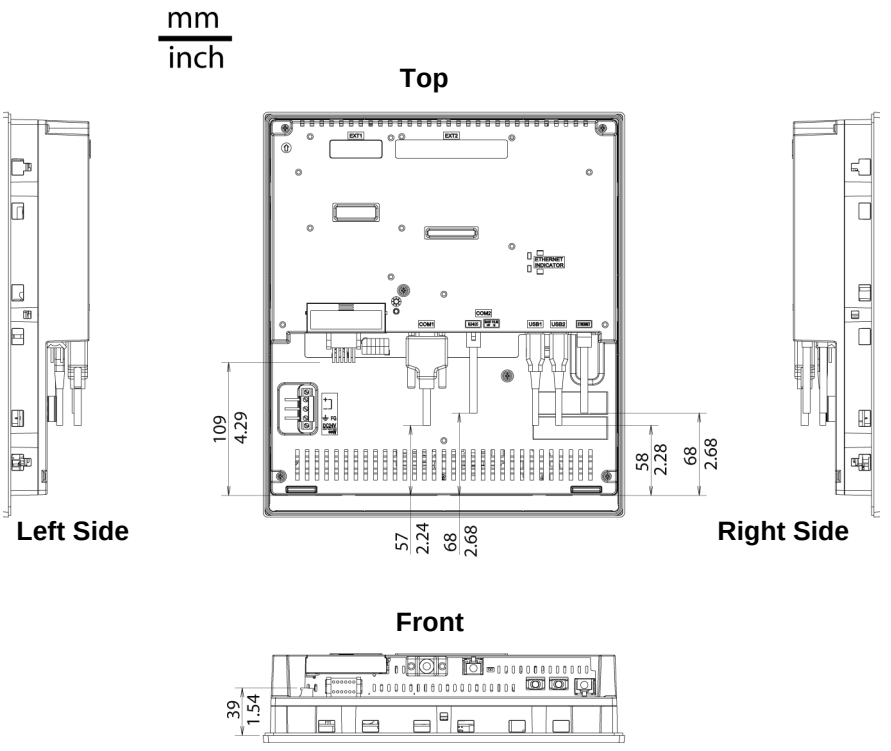


mm
inch

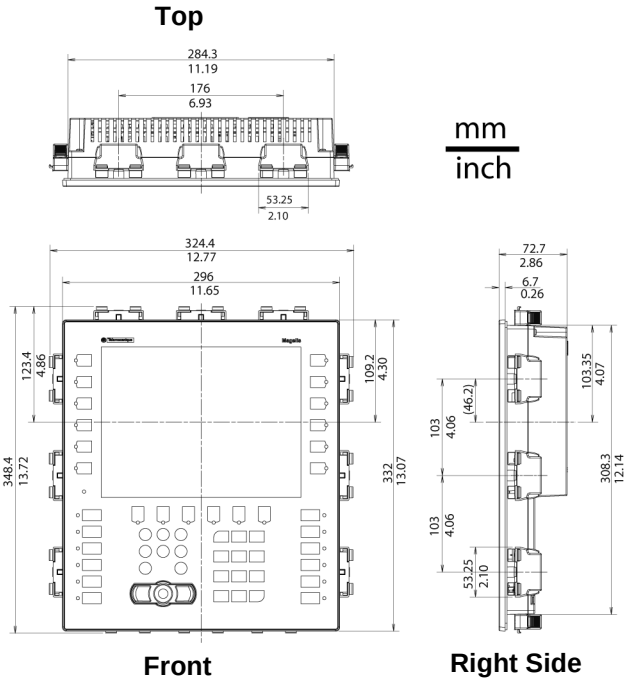


Front **Right Side**

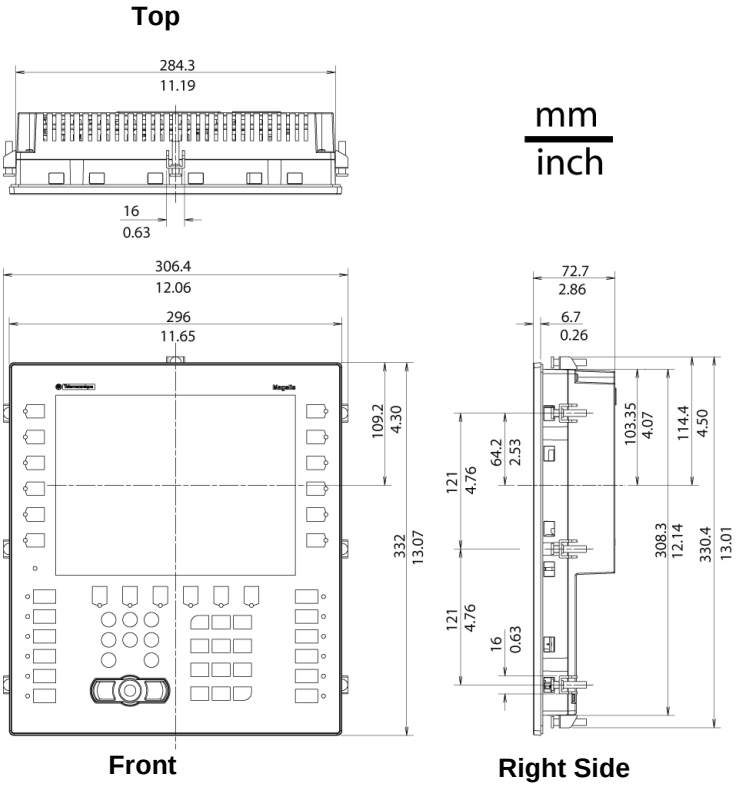
Dimensions of XBT GK5330 with Cables



Installation of XBT GK5330 with Spring Clips



Installation of XBT GK5330 with Screw Fasteners

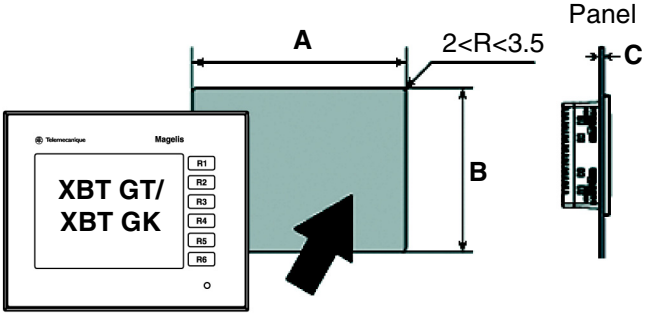


Note: XBT ZGFIX screw installation fasteners must be ordered separately.

Panel Cut Dimension

Inserting a XBT GT/XBT GK

Create a panel cut-out and insert the unit into the panel from the front. The following illustration shows the panel cut-out for a XBT GT/XBT GK unit (example from the XBT GT1000 series).



Dimensions The following table shows the panel cut dimensions for each unit:

Unit	A (mm)	B (mm)	A (in.)	B (in.)	C (mm) Screw Installation Fastener	C (in.) Screw Installation Fastener	C (mm) Spring Clips	C (in.) Spring Clips
XBT GT1100 XBT GT1130 XBT GT1105 XBT GT1135 XBT GT1335	+1 118.5 - 0	+1 92.5 - 0	+ 0.04 4.67 - 0	+ 0.04 3.64 - 0	1.6 to 5.0	0.06 to 0.20	1.5 to 6.0	0.06 to 0.24
XBT GT2110 XBT GT2120 XBT GT2130 XBT GT2220 XBT GT2330	+1 156 - 0	+1 123.5 - 0	+ 0.04 6.14 - 0	+ 0.04 4.86 - 0	1.6 to 5.0	0.06 to 0.20	1.5 to 6.0	0.06 to 0.24
XBT GT4230 XBT GT4330 XBT GT4340	+1 204.5 - 0	+1 159.5 - 0	+0.04 8.05 - 0	+0.04 6.28 - 0	1.6 to 10.0	0.06 to 0.39	1.5 to 6.0	0.06 to 0.24
XBT GT5230	+1 301.5 - 0	+1 227.5 - 0	+0.04 11.87 - 0	+0.04 8.96 - 0	1.6 to 10.0	0.06 to 0.39	1.5 to 6.0	0.06 to 0.24
XBT GT5330 XBT GT5340	+1 259 - 0	+1 201 - 0	+0.04 10.20 - 0	+0.04 7.91 - 0	1.6 to 10.0	0.06 to 0.39	1.5 to 6.0	0.06 to 0.24
XBT GT6330 XBT GT6340	+1 301.5 - 0	+1 227.5 - 0	+0.04 11.87 - 0	+0.04 8.96 - 0	1.6 to 10.0	0.06 to 0.39	1.5 to 6.0	0.06 to 0.24
XBT GT7340	+1 383.5 - 0	+1 282.5 - 0	+0.04 15.10 - 0	+0.04 11.12 - 0	1.6 to 10.0	0.06 to 0.39	1.5 to 6.0	0.06 to 0.24
XBT GK2120 XBT GK2330	+0.4 209 - 0.4	+0.4 243 - 0.4	+0.04 8.18 - 0	+0.04 9.52 - 0	1.6 to 6.0	0.06 to 0.24	1.6 to 6.0	0.06 to 0.24
XBT GK5330	+0.4 285 - 0.4	+0.4 309 - 0.4	+0.04 11.22 - 0	+0.04 12.17 - 0	1.6 to 6.0	0.06 to 0.24	1.6 to 6.0	0.06 to 0.24

Installation Fasteners

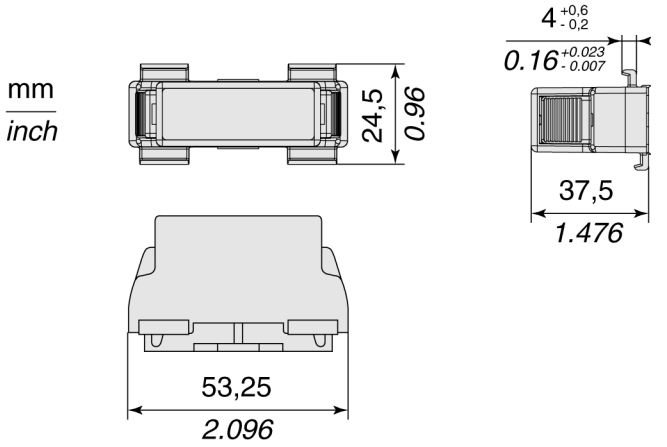
Introduction

Two types of fasteners can be used to mount the XBT GT and XBT GK ranges:

- screw installation fasteners,
- spring clips.

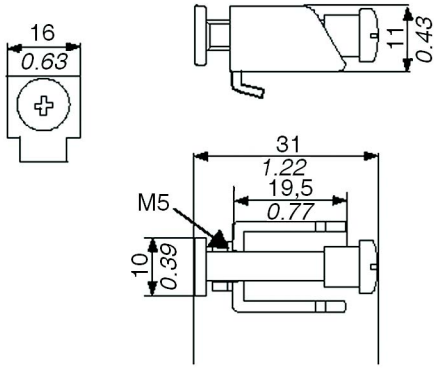
Unit	Spring Clips	Screw Installation Fasteners
XBT GT1000 series	2	4
XBT GT1005 series	2	4
XBT GT2000 series	2	4
XBT GT4000 series	4	4
XBT GT5000 series	4	4
XBT GT6000 series	4	4
XBT GT7000 series	4	8
XBT GK2000 series	10	4
XBT GK5000 series	12	8
XBT GK series delivered with spring clips. XBT GT series delivered with screw installation fasteners.		

Spring Clip Dimensions



Screw Installation Fasteners Dimensions

mm
inch



Installation and Wiring

4

At a Glance

Overview

This chapter describes the installation procedures and the wiring principles for XBT GT and XBT GK.

What's in this Chapter?

This chapter contains the following sections:

Section	Topic	Page
4.1	Installation	138
4.2	Wiring Principles	145
4.3	Tool Port Connector	154
4.4	Ethernet Cable Connector	159
4.5	CF Card	161
4.6	USB Port	165
4.7	AUX Connector	178

4.1 Installation

Installation Procedures

Introduction

Before installing the unit into a cabinet or panel, read the instructions below.

The installation gasket and installation fasteners (screw installation fasteners or spring clips) are required when installing the unit.

⚠ CAUTION

IMPROPER USE

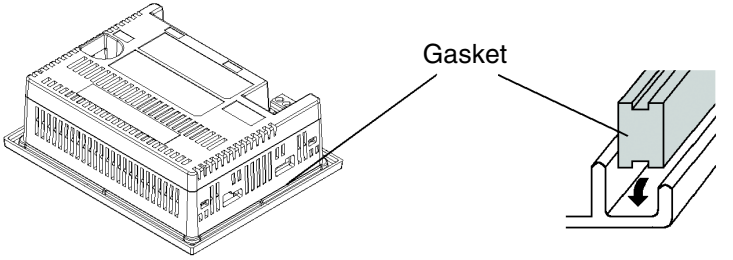
Do not use the cardboard display stand for industrial operation.

Failure to follow these instructions can result in injury or equipment damage.

Mount the terminal in an enclosure that provides a clean, dry, robust and controlled environment (IP65 enclosure) (see *p. 34*).

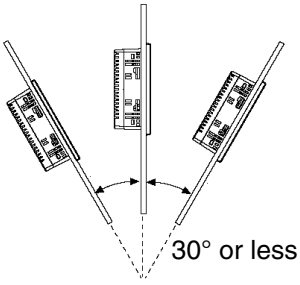
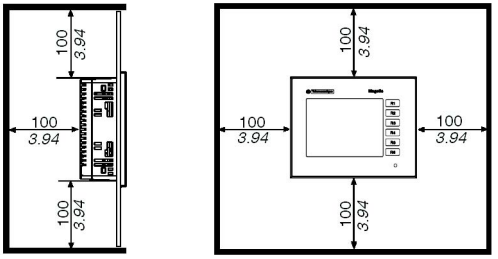
Gasket setup requirements

The gasket helps maintain the protection ratings (IP65, IP20) of the unit, and provides additional protection from vibration.

Stage	Description
1	Before installing the unit into a cabinet or panel, check that the Installation gasket is securely attached to the unit.
2	A gasket which has been used for a long period of time may have scratches or dirt on its surface, and could have lost much of its dust and drip resistance. Change the gasket once a year or when scratches or dirt become visible.
3	Do not insert the joint of the installation gasket in the corner of the unit. Insert the joint only in the straight sections of the groove at the bottom of the product. If you insert the joint incorrectly, the joint will be pulled so that it may cause the installation gasket to be torn.
4	To ensure a maximum level of moisture resistance to the installation gasket, make sure the gasket is inserted into the panel bottom face. 

Panel setup procedure

Stage	Description
1	Check that the installation panel or cabinet's surface is flat, in good condition and has no jagged edges. Metal reinforcing strips may be attached to the inside of the panel, near the panel cut, to increase the panel's rigidity.
2	Panel thickness depends on the unit. Decide the panel's thickness based on the level of panel strength required: 1.6 mm (0.06 inch) to 5 mm (0.2 inch) for XBT GT1000/1005/2000 series, 1.6 mm (0.06 inch) to 10 mm (0.4 inch) for XBT GT4000/5000/6000/7000, 1.6 mm (0.06 inch) to 6 mm (0.24 inch) for XBT GK.
3	Be sure that the ambient operation temperature and the ambient humidity are within their designated ranges. (When installing the unit in a cabinet or enclosure, the ambient operation temperature is the cabinet's or enclosure's internal temperature.)
4	Be sure that heat from surrounding equipment does not cause the unit to exceed its standard operating temperature (see *p. 34*).

Stage	Description
5	When installing the unit in a slanted panel, the panel face should not incline more than 30°.  When installing the unit in a slanted panel, and the panel face inclines more than 30°, the ambient temperature must not exceed 40 °C. You may need to use forced air cooling (fan, A/C) to ensure the ambient operating temperature is 40°C or below.
6	When installing the unit vertically, position the unit so that the power plug is also vertical.
7	When installing the unit in enclosure type 4 compliant environment, use only the installation fasteners supplied with the unit (screw installation fasteners for XBT GT series and spring clips for XBT GK series).
8	For easier maintenance, operation and improved ventilation, install the unit at least 100 mm [3.94 in.] away from adjacent structures and other equipment as shown in the following illustrational: mm inch 

Installation with Spring Clips

⚠ CAUTION

SPRING LOADED MECHANISM

Do not release spring clip mechanism near face.

Failure to follow these instructions can result in injury or equipment damage.

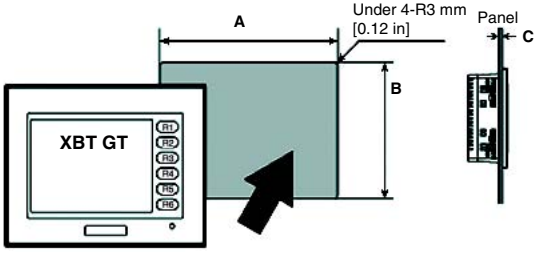
⚠ CAUTION

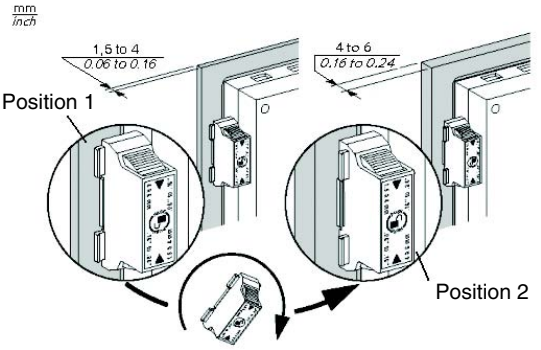
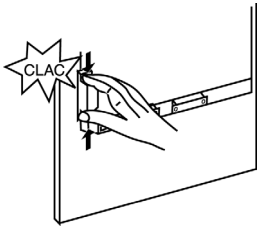
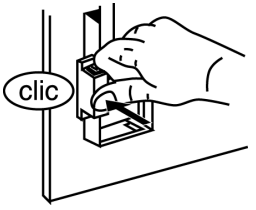
TERMINAL UNSTEADY WHEN UNSECURED

Keep terminal stabilized in the panel cut-out while you are installing or removing the spring clips.

Failure to follow these instructions can result in injury or equipment damage.

Note: Use the installation gasket to absorb vibration and to repel water.

Step	Action
1	Place the unit on a clean and level surface with the display panel facing downward.
2	Check that the unit's installation gasket (see *p. 198*) is seated securely into the gasket's groove, which runs around the perimeter of the panel's frame.
3	Create the correct sized opening required to install the unit, using the installation dimensions (see *p. 132*).
4	Insert the unit (example from the XBT GT1000 series) into the panel cut-out:. 

Step	Action
5	Adjust the spring clips for the panel thickness: ● 1.5 mm ≤ panel thickness ≤ 4 mm (position 1), ● 4 mm ≤ panel thickness ≤ 6 mm (position 2). 
6	Lock the spring clips by pressing simultaneously on the top and the bottom with two fingers. 
7	To remove the spring clips: ● Unlock the spring clips by pressing on the back: 

Note: Spring clips fasteners are required for NEMA4 protection for XBT GK series.

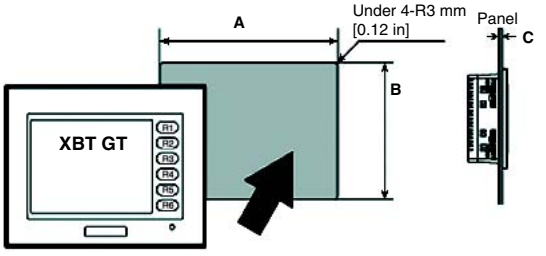
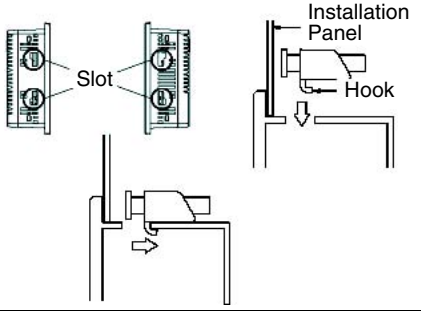
Installation with Screw Fasteners

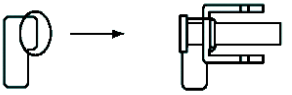
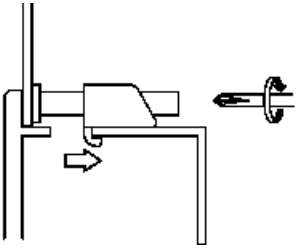
⚠ CAUTION

TERMINAL UNSTEADY WHEN UNSECURED

Keep terminal stabilized in the panel cut-out while you are installing or removing the spring clips.

Failure to follow these instructions can result in injury or equipment damage.

Step	Action
1	Place the unit on a clean and level surface with the display panel facing downward.
2	Check that the unit's installation gasket (see *p. 198*) is seated securely into the gasket's groove, which runs around the perimeter of the panel's frame.
3	Create the correct sized opening required to install the unit, using the installation dimensions (see *p. 132*).
4	Insert the unit (example from the XBT GT1000 series) into the panel cut: 
5	Insert the installation fasteners into the unit's insertion slots situated on the left and right side of the unit and slide them to the back. If the fasteners are not correctly attached, the unit may shift or fall out of the panel: 

Step	Action
6	Be sure to insert installation fasteners in the recessed portion of an installation fastener's hole: 
7	Use a Phillips screwdriver to tighten each fastener screw and secure the unit in place. The necessary torque is 0.5 Nm (4.4 lb-in): 

⚠ CAUTION

AVOID EXCESSIVE FORCE

Do not exert more than 0.5 Nm (4.4 in-lb) of torque when tightening the fastener's screws. Tightening the screw with excessive force can damage the unit's plastic case.

Failure to follow these instructions can result in injury or equipment damage.

Note: Screw installation fasteners are required for NEMA4 protection for XBT GT series.

4.2 Wiring Principles

At a Glance

Overview

This section presents XBT GT and XBT GK wiring principles.

What's in this Section?

This section contains the following topics:

Topic	Page
Connecting the Power Cord	146
Connecting the Power Supply	149
Grounding	151
Input/Output Line Placement	153

Connecting the Power Cord

Introduction

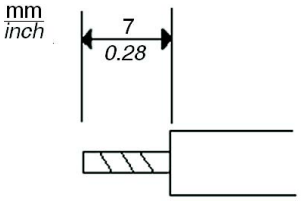
Follow these instructions when supplying power to the unit.

Note:
- When the frame ground (FG) terminal is connected, be sure the wire is grounded. Not grounding the unit can result in excessive noise. Grounding is required to meet EMC level immunity.
- The shield ground (SG) and FG terminals are connected internally in the unit.

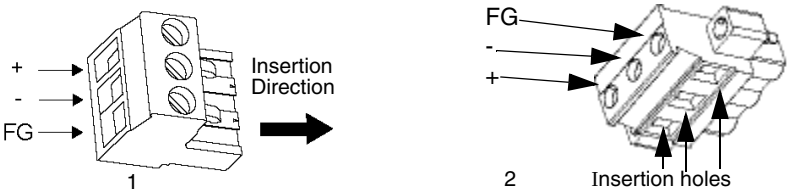
Note:
- Remove power before wiring to the power terminals of the unit.
- The unit uses only 24 VDC power. Using any other level of power can damage both the power supply and the unit.
- Since the unit is not equipped with a power switch, be sure to connect a power switch to the unit's power supply.
- Be sure to ground the unit's FG terminal.

Power Cord Preparation

Note:
- Make sure the ground wire is the same gauge or heavier than the power wires.
- Do not use aluminum wires in the power cord for power supply.
- If the conductor's end (individual) wires are not twisted correctly, the end wires may either short loop to each other or against an electrode. To avoid this, use D25CE/AZ5CE cable ends.
- Wherever possible, use wires that are 0.2 to 2.5 mm^2 (24 - 12 AWG) for the power cord, and twist the wire ends before attaching the terminals.
- The conductor type is solid or stranded wire.



Power Plug Illustration



1 - Power plug for XBT GT1000/1005/2000/4000 series and XBT GK2000 series

2 - Power plug for XBT GT5000/6000/7000 series and XBT GK5000 series

Connection	Wire
+	24 V
-	0 V
FG	Grounded terminal connected to the unit chassis.

How to connect the Power Cord

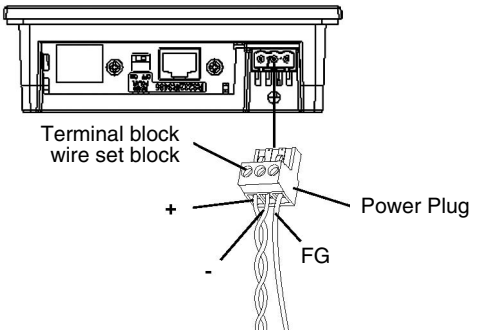
The following table explains how to connect the power plug:

Step	Action
1	Remove the power cord from the power supply.
2	Remove the power plug from unit.
3	Remove 7 mm (.28 in.) of the vinyl cover of each of the power cord's wires.
4	If using stranded wire, twist the ends. Tinning the ends with solder reduces risk of fraying and ensures good electrical transfer.
5	Connect the wires to the power plug by using flat-blade screwdriver (Size 0.6 X 3.5)
6	Torque the mounting screws: 0.5 to 0.6 nm (4.4 to 5.2 lb-in)
7	Replace the power plug to the power connector.

Note:
- Do not solder the wire directly to the power receptacle pin.
- The power supply cord should meet the specification shown above. Be sure to twist the power cords together, up to the power plug, for EMC cancellation. (See illustration as shown below)

Example of Power Cord's Connection

The following illustration displays a connection's example of the power cord on the XBT GT1000 series:



Connecting the Power Supply

Precautions

- Connect the power cord to the power connector on the side of the unit using the power plug.
- Between the line and the ground, be sure to use a regulated power supply with a Class 2 power supply
- To increase the noise resistance, be sure to twist the ends of the power cord wires before connecting them to the power plug.
- The unit's power supply cord should not be bundled with or kept close to main circuit lines (high voltage, high current), or input/output signal lines.
- Connect a lightning surge absorber to handle power surges.
- To reduce noise, make the power cord as short as possible.

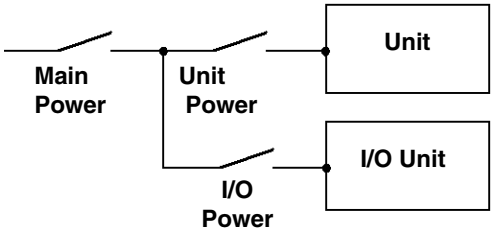
Excessive stress on the power connection or attempting to install a unit with the power cables connected may disconnect or cause damage to the power connections, which can cause short circuits, fire or unintended equipment operation.

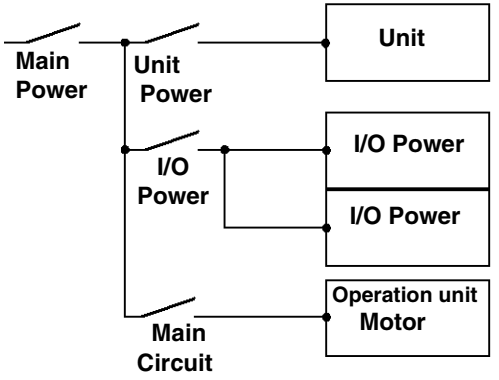
Avoid excessive force on the power cable to prevent accidental disconnection.

- Securely attach power cables to the panel or cabinet.
- Use the designated torque to tighten the unit's terminal block screws.
- Install and fasten unit on installation panel or cabinet prior to connecting Power Supply and Communication lines.

Power Supply Connections

For ease of maintenance, use the following optional connection diagram to set up your power supply connections.

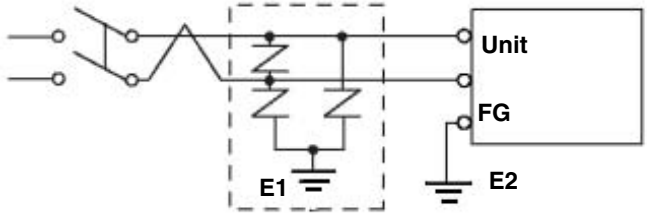




Note:

- Ground the surge absorber (E1) separately from the unit (E2).
- Select a surge absorber that has a maximum circuit voltage greater than that of the peak voltage of the power supply.

The following displays a lightning surge absorber connection:

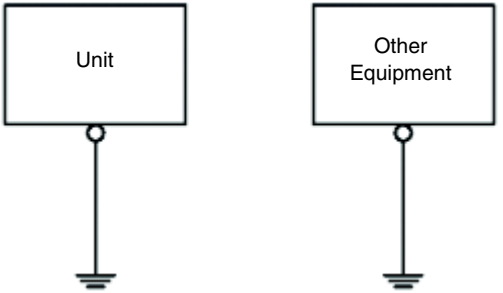


Grounding

Take the following precautions for grounding the unit.

Exclusive Grounding

Connect the frame ground (FG) terminal on the power plug to an exclusive ground.



Grounding Procedure

Step	Action
1	Check that the grounding resistance is less than 100 Ω. (1).
2	The FG wire should have a cross sectional area greater than 2 mm (1). Create the connection point as close to the unit as possible, and make the wire as short, as possible. When using a long grounding wire, replace the thin wire with a thicker wire, and place it in a duct.
3	If the equipment does not function properly when grounded, disconnect the ground wire from the FG terminal.
(1): Observe local codes and standards. Ensure the ground connection has a resistance of less than 100 Ω and that the ground wire has a cross-section of at least 2 mm^2 or 14 AWG.	

Common Grounding

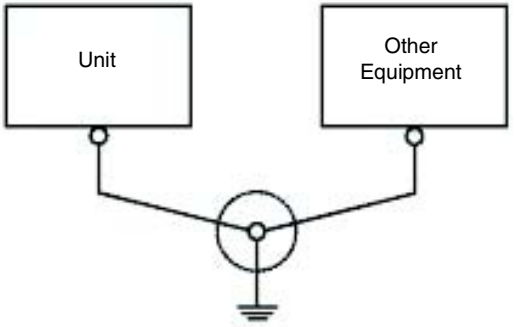
Precautions:

Noise can be created if the devices are improperly grounded. Noise can cause loss of communication.

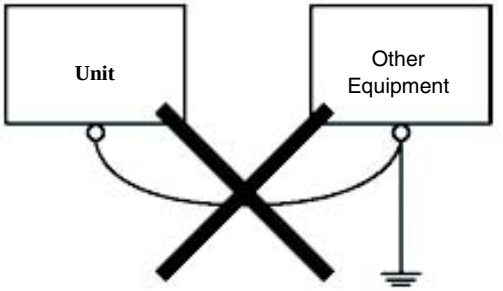
Do not use common grounding, except for the authorized configuration described below.

If exclusive grounding is not possible, use a common connection point.

Correct grounding



Incorrect grounding



Input/Output Line Placement

Introduction

Input and output signal lines must be separated from the power supply cables for operating circuits.

If this is not possible, use a shielded cable and connect the shield to the unit's FG terminal.

4.3 Tool Port Connector

At a Glance

Overview

This section describes the Tool Port Connector Installation.

What's in this Section?

This section contains the following topics:

Topic	Page
Making Tool Port Connections	155
USB Driver Installation	156

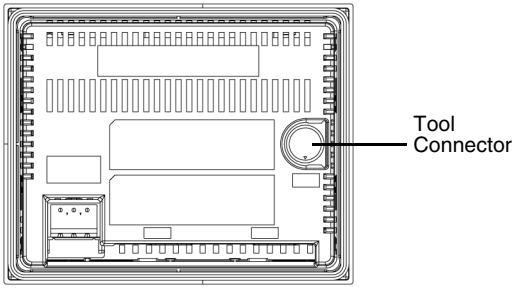
Making Tool Port Connections

Introduction

The XBTZG915 and XBTZG925 data transfer cables can be attached to the tool port on XBT GT1000 Series units to allow transferring of data from the computer to the XBT GT (see *p. 63*).

⚠ CAUTION
REMOVE POWER Unplug the XBT GT unit's power cord from the 24 VDC power supply prior to attaching or detaching any connector(s) to or from the XBT GT. **Failure to follow these instructions can result in injury or equipment damage.**

Tool Port Connector Location

XBT GT Unit	Tool Port Connector Location
Rear face of: XBT GT1100 XBT GT1130	

USB Driver Installation

Introduction

Use the USB data transfer cable to download data from a PC running Vijeo-Designer to the unit. It connects to the tool port of the unit.

Installation Requirements

PC, Microsoft Windows 2000 (SP4 and up), XP (SP2 and up), and Vista Business operating system (OS).

Vijeo-Designer Installation CD.

Consider the following when installing the USB driver:

- Do not connect the USB data transfer cable until told to do so in the instructions.
- When connecting the USB data transfer cable to the PC or to the unit, insert the cable's connector at the correct 90° angle.
- When disconnecting the cable, make sure to hold the connector, not the cable itself.
- If the installation does not complete successfully, restart the PC and quit all resident applications before re-installing the software.

Note: Vijeo-Designer must be installed before installing the USB driver.

Installation Procedure for Windows 2000, XP, and Vista

Step	Action
1	Insert the Vijeo Designer Installation CD-ROM into your CD-ROM drive. The Setup window for Vijeo-Designer should open automatically. If not, at the Windows Start menu, click Run and type **x:\install.exe** (where x is your CR-ROM drive letter).
2	In the install menu, select **USB Driver**.
3	Select the driver you want to install from the window that appears. For the XBT ZG925 USB cable, select **Install USB driver for XBTG/XBTGT1000 Series**.
4	A popup window appears stating that the installation of the driver was successful.
5	Connect the USB cable to the computer. Windows should automatically detect the cable and state that the device is now ready to use.

Post-Installation Check

Execute the following check after installation:

Step	Action
1	On the target machine, make sure the USB cable is physically connected to the USB port.
2	On the PC, make sure the USB cable is physically connected to the USB port.
3	On the desktop, right-click **My Computer** and click **Properties**.
4	In the **System Properties** dialog box, select the **Hardware** tab, and then click **Device Manager**.
5	Confirm that Telemecanique XBT ZG925 COM3 is listed below **Ports [COM & LPT]**.

Changing the COM Port Number

The COM port number 3 is assigned automatically by the operating system (OS). If the OS had previously allocated COM 3 or other numbers for devices such as internal modems, IrDA ports, and so on, XBT ZG9255 is allocated to the next available COM number. However if required, you can change the COM port number.

Step	Action
1	In the Control Panel, click on **System Properties** and select **Device Manager**.
2	Click to expand the **Ports [COM & LPT]** folder, right-click the **Telemecanique XBT ZG925 COM 3**Telemecanique XBT ZG925 COM 3 node, and then click **Properties**.
3	In the **Telemecanique XBT ZG925 [COM 3] Properties** dialog box, click the **Port Settings** tab, and click the **Advanced** button.
4	At the bottom of the **Advanced Settings for COM 3** dialog box, select an unused number and click **OK**.
5	When the following **Communication Port Properties** dialog box appears, click **Yes**.

Troubleshooting

Problem/Symptom	Solution
The USB cable is not recognized.	Connect the cable correctly, or restart your PC. Also, when connecting a USB hub, make sure to connect it directly to your PC's USB port.
The Plug and Play is not functioning correctly.	
You are unable to use the USB cable after connecting it to a USB hub.	The power supplied from the hub may be insufficient. Make sure the hub is self-powered.
	Connect the cable directly to the PC USB port.
After installation, a **?** is displayed when you try to confirm the cable's status via the Device Manager.	The driver has not been installed correctly. Uninstall the driver and re-install it.

Uninstalling the USB Driver

Unplug the USB data transfer cable from the PC and double-click on the CD-ROM's DRemover2K.exe file to start the uninstallation process.

4.4 Ethernet Cable Connector

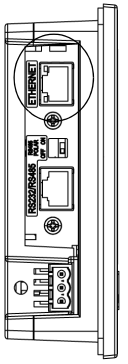
Presentation

Introduction

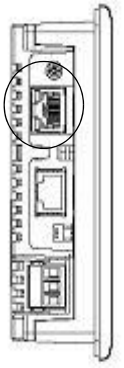
The XBT GT series (except for the XBT GT1100/1105/2110/2120/2220 models) and the XBT GK series (except for the XBT GK2120) comes equipped with an IEEE802.3 compliant Ethernet interface, that transmits and receives data at 10 Mbps or 100 Mbps.

Ethernet Cable Connector

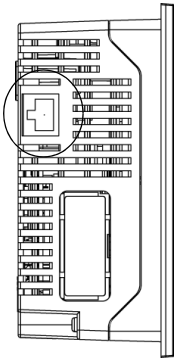
The following illustration displays the location of the RJ45 Ethernet cable connector:



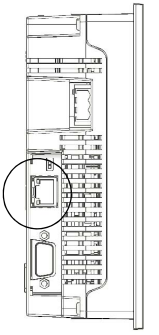
XBT GT1130
Bottom



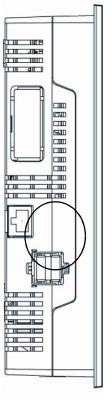
XBT GT1135/
1335 Bottom



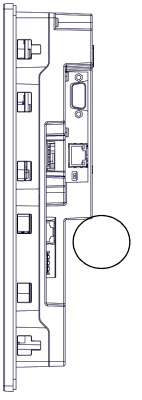
XBT GT2130/
2330
Right Side



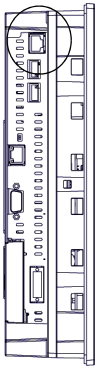
XBT GT4000 series
Bottom



XBT GT5000/6000/7000
series Left Side



XBT GK2330
Right Side



XBT GK5330 Bottom

⚠ CAUTION

IMPROPER CONNECTIONS CAN DAMAGE COMMUNICATION PORTS

- Do not confuse the RJ45 Ethernet connector with the RJ45 COM1/COM2 serial port.
- Do not connect the serial cable to the Ethernet port.
- Do not connect the Ethernet cable to the serial port.
- Carefully observe the product markings distinguishing between the Ethernet and serial ports.

Failure to follow these instructions can result in injury or equipment damage.

Note: Ethernet networks should be installed by a trained and qualified person. 1:1 connections should be made with a hub or a switch. It is possible to use the 1:1 connection with a cross cable depending on the connected PCs and network cards.

4.5 CF Card

CF Card Installation and Removal

Introduction

CF Cards can be used store the following types of data:

- Historical Data
- Recipe Data
- Alarm Data
- Project Backups

Please refer to the Vijeo-Designer Online Help for more information on using the CF Card in your project. The following target machines support the use of CF cards:

- XBT GT2000 series (except for XBT GT2110)
- XBT GT4000 series
- XBT GT5000 series
- XBT GT6000 series
- XBT GT7000 series
- XBT GK series

Precautions

⚠ CAUTION

CF CARD DATA LOSS

- Do not bend the CF card.
- Do not drop or strike the CF card against another object.
- Keep the CF card dry.
- Do not touch the CF card connectors.
- Do not disassemble or modify the CF card.

Failure to follow these instructions can result in injury or equipment damage.

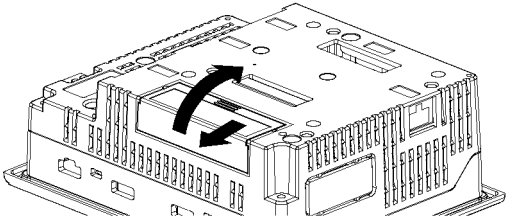
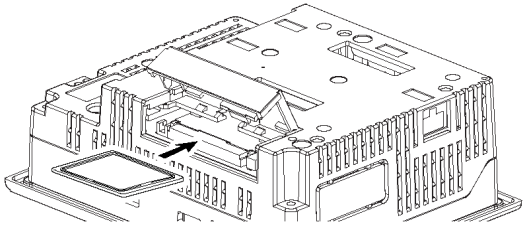
When using the unit and a CF card, follow the precautions below:

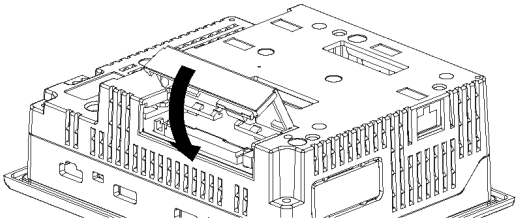
- Prior to inserting or removing a CF card, be sure to turn the unit's CF card ACCESS switch OFF and to confirm that the ACCESS lamp is not lit. If you do not, CF card internal data may be damaged or lost.
- Check that the CF card DIP switch settings are appropriate (see *p. 91*).

- While a CF card is being accessed, never turn OFF or reset the unit, or insert or remove the CF card. Prior to performing these operations, use Vijeo-Designer to create and use a special unit application screen that will prevent access to the CF card. See Vijeo-Designer online help for further details.
- Prior to inserting a CF card, familiarize yourself with the CF card's front and rear face orientation, as well as the CF card connector's position. If the CF card is not correctly positioned when it is inserted into the unit, the CF card's internal data and the unit may be damaged or broken.
- Be sure to use only CF cards manufactured by Schneider Electric.
- Once unit data is lost, it cannot be recovered. Since accidental data loss can occur at any time, be sure to back up all unit screen and CF card data regularly. See the Vijeo-Designer Online Help for more information on backing up your unit's data.

Inserting the CF Card

Use the following steps to insert the CF card.

Step	Action
1	Slide the CF card cover in the direction shown here, then upwards to open the cover. 
2	Insert the CF card in the CF card Slot, until the ejector button is pushed forward. 

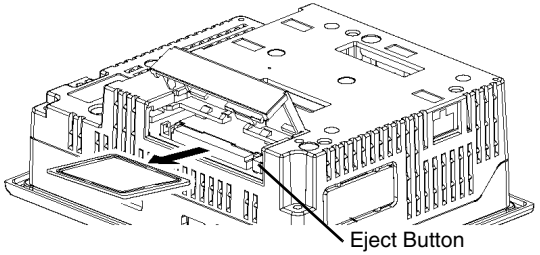
Step	Action
3	Close the cover. 
4	Confirm that the CF Card Access LED turns ON. You cannot access the CF Card with the CF Card cover opened. However, if the CF Card is being accessed, the access will continue even if you open it on the way.

Removing the CF Card

Simply reverse the steps shown in the previous procedure.

Prior to removing the CF card, confirm that the **CF Card Access** LED is turned OFF.

The following figure displays how to remove the CF card:



CF Card Handling

The CF card has a life expectancy of 100,000 write cycles. Therefore, be sure to back up all CF card data regularly to another storage media. (100,000 times assumes the overwriting of 500 kilobytes of data in DOS format). See Vijeo-Designer online help for information on managing CF Card data.

The following table presents two methods to back up data.

If	Then	And
Your PC is equipped with a PC card slot	To view CF card data on a personal computer, first, insert the CF card into a CF card adaptor XBT ZGADT.	Save data CF card on the PC.
Your PC is not equipped with a PC card slot	Use a standard XBT ZGADT type PC Card or CF card reader.	Save data CF card on the PC.

Note: Depending on the setup of your PC, it is possible that the card reader may not operate correctly.
The connection between a personal computer and CF card reader has been tested using a Windows® compatible machine. Check that CF card reader is correctly installed and configured. Please contact your PC or CF card reader manufacturer directly for details.

4.6 USB Port

At a Glance

Overview

This section presents the USB port.

What's in this Section?

This section contains the following topics:

Topic	Page
Important Considerations When Using the USB Port	166
USB Data Transfer Cable (XBT ZG935) - USB Driver Installation	167
USB Clamp	169
USB Holder	173

Important Considerations When Using the USB Port

Introduction

The following units have a USB port:

- XBT GT1005 series
- XBT GT2000 series
- XBT GT4000 series
- XBT GT5000 series
- XBT GT6000 series
- XBT GT7000 series
- XBT GK series

Data transfer cable (XBT ZG935) can be attached to the USB port to allow transferring of data from the computer to the unit.

⚠ CAUTION

EXPOSURE TO 2 VDC

Remove power before attaching or detaching any connector(s) to or from the unit.

Failure to follow these instructions can result in injury or equipment damage.

⚠ DANGER

RISK OF EXPLOSION

Confirm that the USB cable has been attached with the USB cable clamp (for XBT GT2000 and XBT GK series) or the USB holder (for XBT GT1005, 4000, 5000, 6000 and 7000 series) before using the USB host interface in hazardous locations as described in UL1604.

Failure to follow these instructions will result in death or serious injury.

USB Data Transfer Cable (XBT ZG935) - USB Driver Installation

Important information

Follow the procedure described below to prevent damage to the cable connector or the unit.

- Do not connect the USB data transfer cable until told to do so in the instructions.
- When connecting the USB data transfer cable to the PC or to the unit, insert the cable's connector at the correct 90° angle.
- When disconnecting the cable, make sure to hold the connector, not the cable itself.
- If the cable is unplugged from the port designated during installation and connected to a different port, the OS will not recognize the new port. Therefore, make sure to always use the port designated during installation.
- If the installation does not complete successfully, restart the PC and quit all resident applications before re-installing the software.

Note: Vijeo-Designer must be installed before installing the USB driver.

Installation Procedure for Windows 2000, XP, and Vista

Step	Action
1	Insert the Vijeo Designer Installation CD-ROM into your CD-ROM drive. The Setup window for Vijeo-Designer should open automatically. If not, at the Windows Start menu, click Run and type **x:\install.exe** (where x is your CR-ROM drive name).
2	In the install menu, select **USB Driver**.
3	Select the driver you want to install from the window that appears. For the XBT ZG935 USB cable, select **Install USB driver for XBTGT2000 Series and higher**.
4	A popup window appears stating the installation of the driver was successful.
5	Connect the USB cable to the computer. Windows should automatically detect the cable and state that the device is now ready to use.

Post-Installation Check

Perform the following check after installation:

Step	Action
1	On the target machine, make sure the USB cable is physically connected to the USB port.
2	On the PC, make sure the USB cable is physically connected to the USB port.
3	On the desktop, right-click **My Computer** and click **Properties**.
4	In the **System Properties** dialog box, select the **Hardware** tab, and then click **Device Manager**.
5	In the Device Manager, the USB link cable (XBT ZG935) should display below the USB controller.

Troubleshooting

Problem/Symptom	Solution
The USB cable is not recognized.	Connect the cable correctly, or restart your PC. Also, when connecting a USB hub, make sure to connect it directly to your PC's USB port.
Overcurrent occurred	
The Plug and Play is not functioning correctly.	
You are unable to use the USB cable after connecting it to a USB hub.	The power supplied from the hub may be insufficient. Make sure the hub is self-powered.
	Connect the cable directly to the PC USB port.
After installation, a **?** is displayed when you try to confirm the cable's status via the Device Manager.	The driver has not been installed correctly. Uninstall the driver and re-install it.

Uninstalling the USB Driver

Step	Action
1	Click the USB device icon **Stop USB link cable** in the Windows task tray and then click **Stop USB link cable (XBT ZG935)** for Windows 2000, or **Safely remove USB link cable (XBT ZG935)** for Windows XP.
2	When the **Safe To Remove Hardware** message box appears, remove the USB download cable.
3	Click **OK** to close the message box.

USB Clamp

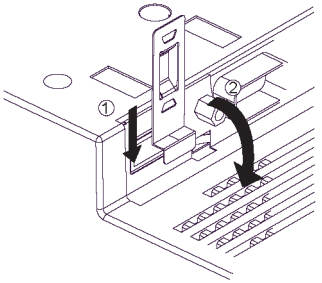
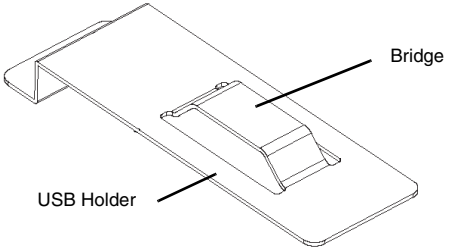
Introduction

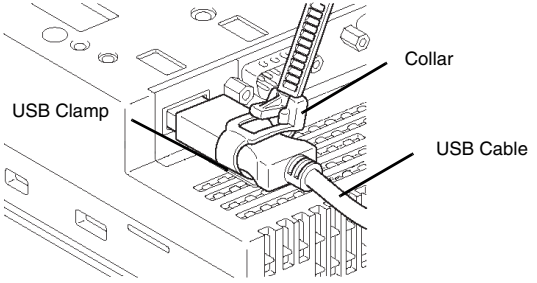
When using a USB device, you can attach a USB clamp to the USB interface on the side of the unit to prevent the USB cable from being disconnected. The USB clamp can be used with the following units:

- XBT GT2000 series
- XBT GK series

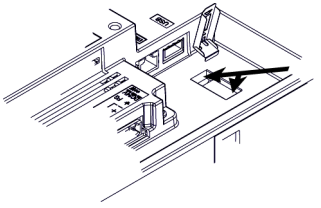
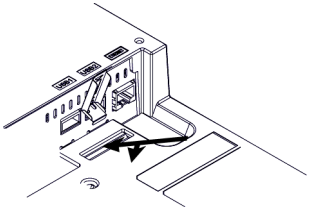
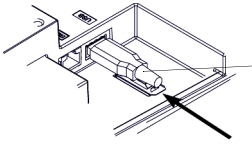
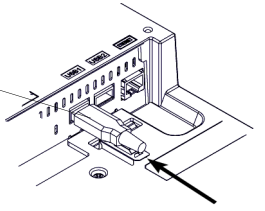
⚠ CAUTION
EXPOSURE TO 24 VDC
Remove power before attaching or detaching any connector(s) to or from the unit.
Failure to follow these instructions can result in injury or equipment damage.

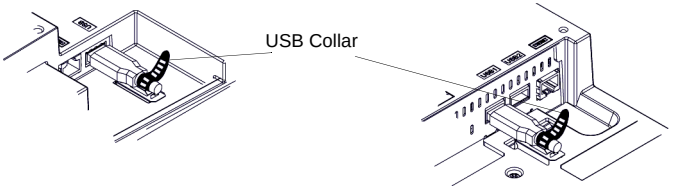
Attaching the USB Clamp to the XBT GT Series

Step	Action
1	Insert the USB clamp into the slot in front of the unit's USB port and pull it down and forward. 
2	Pass the band of the USB collar through the bridge of the USB clamp. 

Step	Action
3	Insert the USB cable into the port. Fasten the band around the plug and secure it with the collar. 

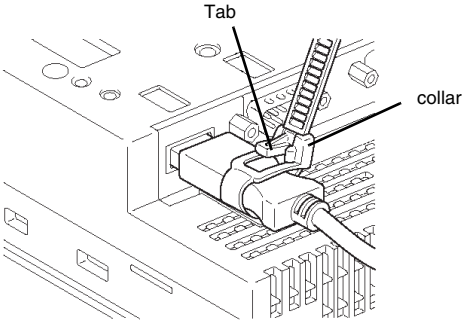
Attaching the USB Clamp to the XBT GK Series

Step	Action
1	Attach the USB clamp to the USB Host Interface on the main unit. Insert the USB clamp into the USB clamp places as shown in the picture below. XBT GK 2120/2330 series  XBT GK 5330 series 
2	Insert the USB cable into the USB host interface. XBT GK 2120/2330 series  USB cable XBT GK 5330 series 

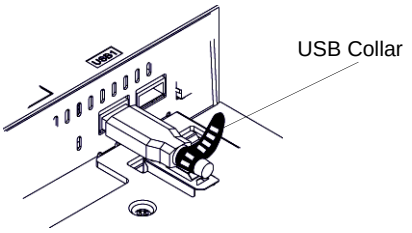
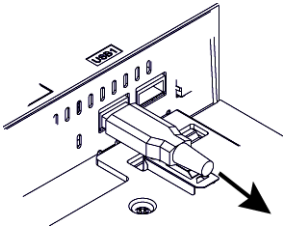
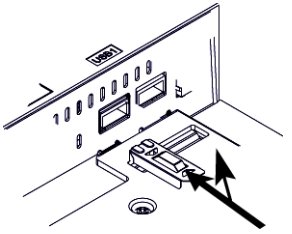
Step	Action
3	Attach the USB collar to the USB cable and to the USB clamp to fix the USB cable in place. XBT GK 2120/2330 series XBT GK 5330 series  If you are installing a second USB cable, repeat steps 2 and 3.

Releasing the USB Clamp on the XBT GT Series

Lower the tab and lift the collar to release the plug.



Removing the USB Clamp on the XBT GK Series

Step	Action
1	Release the USB collar and remove it. XBT GTK series 
2	Remove the USB cable. XBT GTK series 
3	To remove the USB clamp, lift it up. 

USB Holder

Introduction

When using a USB device, you can attach a USB holder to the USB interface on the side of the unit to prevent the USB cable from being disconnected. The USB holder can be used with the following units:

- XBT GT1005 series
- XBT GT4000 series
- XBT GT5000 series
- XBT GT6000 series
- XBT GT7000 series

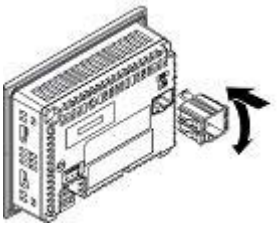
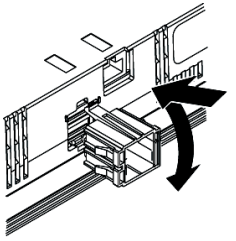
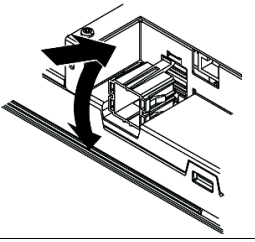
⚠ CAUTION

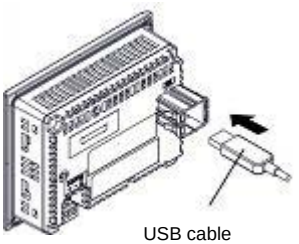
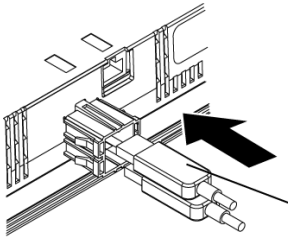
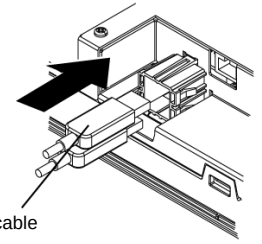
EXPOSURE TO 24 VDC

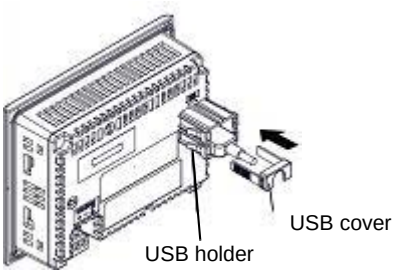
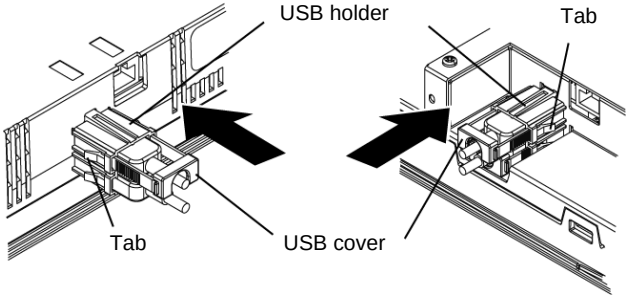
To prevent an electric shock, unplug the unit's power cord from the 24 VDC power supply prior to attaching or detaching any connector(s) to or from the unit.

Failure to follow these instructions can result in injury or equipment damage.

Attaching the USB Holder

Step	Action
1	Attach the USB holder to the USB Host Interface on the main unit. Hook the upper pick of the USB holder to the attachment hole of the main unit, and insert the lower pick as shown below to fix the USB holder. XBT GT1005 series  XBT GT4000/5000/6000 series  XBT GT7000 series 

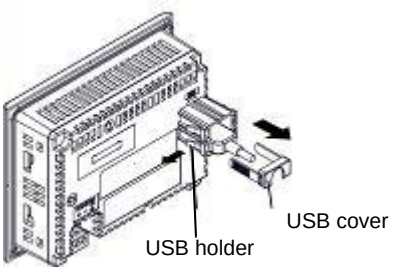
Step	Action
2	Insert the USB cable into the USB host interface. XBT GT1005 series  USB cable XBT GT4000/5000/6000 series  XBT GT7000 series  USB cable

Step	Action
3	Attach the USB cover to fix the USB cable in place. Insert the USB cover into the tab of the USB holder. XBT GT1005 series  XBT GT4000/5000/6000 series XBT GT7000 series  If you are installing a second USB cable, repeat steps 2 and 3.

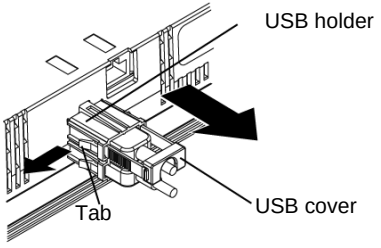
Removing the USB Holder

Lift up the tab of the USB holder and then remove the USB cover.

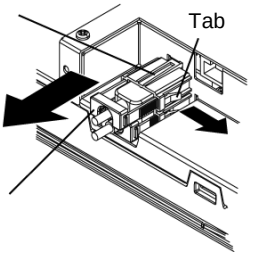
XBT GT1005 series



XBT GT4000/5000/6000 series



XBT GT7000 series



4.7 AUX Connector

AUX Connector

Introduction

You can connect the cable to the AUX connector to perform an external reset input or a speaker output. The AUX connector can be used with the following XBT GT units:

- XBT GT4000 series
- XBT GT5000 series
- XBT GT6000 series
- XBT GT7000 series
- XBT GK5330

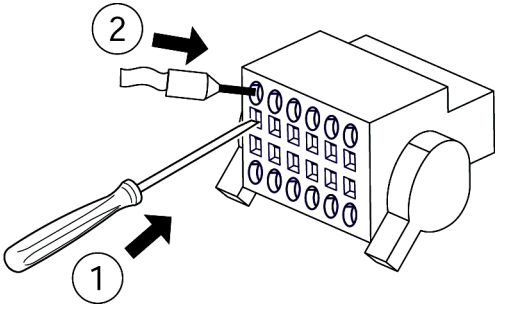
⚠ CAUTION

EXPOSURE TO 24VDC

Remove power before attaching or detaching any connector(s) to or from the unit.

Failure to follow these instructions can result in injury or equipment damage.

Installing the AUX Connector

Step	Action
1	Remove 7 mm (.28 in.) of the vinyl cover of each of the wires.
2	If using stranded wire, twist the ends. Tinning the ends with solder reduces risk of fraying and ensures good electrical transfer.
3	Insert a driver into the square-shaped hole.
4	Insert the cable into the circular-shaped hole and pull out the driver. The cable is then fixed. 
5	Insert the AUX connector into the AUX input/output and sound output interface.

Setting and Debugging

II

At a Glance

Overview

This part describes the settings available on the target machine as well as how to debug the unit.

What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
5	Settings	183
6	Troubleshooting	189
7	Maintenance	197

Settings

5

At a Glance

Overview

This chapter presents the settings on the XBT GT and XBT GK units.

What's in this Chapter?

This chapter contains the following sections:

Topic	Page
Types of Settings	184
Offline Settings	185
System Settings	187

Types of Settings

Introduction

You can use the **Settings** menu to configure the unit.

Depending on how you use your XBT GT or XBT GK, you can display the **Settings** menu using three different methods:

- Use a switch,
- Touch the top-left corner of the panel when powering up,
- Touch three corners of the panel simultaneously while the application is running.

You can select which methods your application uses in the Vijeo-Designer editor's Target properties.

Calling Up the Settings Menu

Step	Action
1	Set up any combination of the following methods for displaying the **Settings** menu. ● Switch: create a switch and add the Configuration System Operation. See the Vijeo-Designer online help for more information on creating a switch. ● Top-Left Corner: in the **Target** properties, set **To Configuration** to either **Top Left Corner** or **Top Left/3 Corner**. ● Touch three corners simultaneously: in the **Target** properties, set **To Configuration** to either **3 Corner** or **Top Left/3 Corner**. If you set **To Configuration** to **None** and do not create a switch to display the **Settings** menu, then there is no way to configure the unit at runtime.
2	Connect the unit's power supply.
3	Depending on what you set up in Step 1, you can display the **Settings** menu using one of the following methods: ● Touch the switch set up with the Configuration system operation. ● Touch the top-left corner of the screen within ten seconds after the unit begins starting up. ● Touch any three corners of the panel simultaneously. Vijeo-Designer Runtime restarts and displays the Settings menu.
4	The **Settings** menu contains two tabs: **Offline** and **System**. Click either tab to display its settings.

Offline Settings

Introduction

The offline settings cannot be changed while a user application is running.

Offline Tab

See the Vijeo-Designer online help for information on accessing the offline settings tab.

Changing Network Settings

The following procedure applies to all units except the XBT GT1100 and XBT GT1105.

Step	Action
1	In the **Settings** menu, touch the **Offline** tab.
2	Touch the **Network** icon.
3	Touch any of the three fields (**IP Address**, **Subnet Mask**, or **Default Gateway**) and a keypad will appear.
4	Enter the desired network addresses.

Note: To apply changes to the network settings restart the unit by touching **To Run Mode** and return to the application.

Changing the Buzzer Settings

Step	Action
1	In the **Settings** menu, touch the **Offline** tab.
2	Touch the **Buzzer** icon.
3	Touch the desired buzzer mode. The factory setting is **When Press Touch Object**. • **None:** Selecting this will turn the buzzer OFF. • **When Press Touch Object:** The buzzer will only sound when a Touch Object is touched.

Changing Backlight Control

Step	Action
1	In the **Settings** menu, touch the **Offline** tab.
2	Touch the **Backlight** icon.
3	In the **Backlight Control**, define the backlight operations. • **Wait:** To extend the life of the backlight, you can set up the unit so that it turns off the backlight when the panel is inactive (idle) for the defined period of time, (Idle means the unit panel has not been touched). The factory setting for this item is OFF. • **Enable Touch if Backlight is Burned Out:** this setting defines whether the touch panel is enabled or disabled when a backlight burnout is detected. When this feature is cleared and the backlight burns out, touch inputs are ignored to prevent operation errors. the factory setting for this item is OFF.
4	To turn the backlight off automatically after a specified period of time, touch the **Wait** checkbox and then set the idle time.

Option

Configure the COM1 port as a power supply.

System Settings

Introduction

You can change system settings while the user application is still running.

System tab

See the Vijeo-Designer online help for information on accessing the **System Settings** tab.

Stylus

The stylus setting is not supported for XBT GT1100/1130 series units.

Changing the Date/Time

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Date/Time** icon.
3	Touch any of the **Date** or **Time** fields and a data entry keypad will display. Use this keypad to define the selected date or time setting.

Forcing a Restart

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Restart** icon.
3	Touch the **Restart** button to restart the unit.

Selecting a Language

The following table describes how to select the language used for the Settings menu, the run-time messages and user application.

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Language** icon.
3	Touch the spin boxes to select the desired system and user application languages. The languages available in the language settings are defined in the Vijeo-Designer editor.

Displaying Version Information

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Ver.Info** icon. Version information displays the version number of the runtime and the version and build number of the editor that was used to design the user application.

Displaying Memory Statistics

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Memory** icon. ● DRAM describes the amount of memory currently being used by the application. ● Main Flash indicates the amount of internal memory (flash memory) required to store the runtime system files and the user application.

Brightness/ Contrast Control

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Brightness** icon.
3	Touch the up/down arrows to adjust the brightness and contrast. Reducing the brightness and contrast could increase the life span of the backlight.

Option

In some projects and in some environments, inverting could make the application more visible and reduce eye-strain for the operator working with the target machine.

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Option** icon.
3	Select **Invert** to reverse the black and white colors on the screen.

Troubleshooting

6

At a Glance

Overview

This chapter describes how to find and resolve problems with the XBT GT and the XBT GK.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Troubleshooting Checklists	190
Self Test List	194

Troubleshooting Checklists

Introduction

When a problem occurs, to go through the checklist and follow the instructions given.

Here are the main problems that may occur when using an XBT GT or XBT GK.

- Panel display is blank,
- Connected equipment cannot be used,
- Panel does not respond or responds very slowly,
- Panel beeps when powered on,
- Cannot change the date or time.

Note: Contact your local Schneider Electric vendor or the vendor who sold you the unit.

Panel Display is Blank

If the unit display is blank, perform the following check steps:.

Step	Check/Operation	Solution
1	Are all Vijeo-Designer screens downloaded?	You may have to download the screens again.
2	Is the Initial Panel ID set up correctly in Vijeo-Designer?	Enter the Initial Panel ID in the Vijeo- Designer editor and download again.
3	Is the unit using the correct rated voltage?	Verify the power supply connections and levels.
4	Is the power supply OFF or disconnected?	Follow the instructions in this manual for reconnecting the power supply.
5	Is the power lamp lit?	A blank power lamp may indicate a problem with the hardware.
6	Is the backlight lit?	The backlight may be burned out or there may be a problem with the unit. Contact your local Schneider Electric distributor, for backlight replacement.
7	Is the problem resolved?	If none of the previous steps fixed the blank panel display problem, then there is a problem with the hardware.

Connected Equipment Cannot be Used

If the unit fails to communicate with connected equipment, perform the following check steps:.

Step	Check/Operation	Solution
1	Is the power supply OFF or disconnected?	Verify the power supply connections and levels.
2	Do the **Driver** and **Equipment** settings in Vijeo-Designer match the actual equipment you are trying to communicate with?	In the Vijeo-Designer editor's Navigator window's **Project** tab, expand the I/O Manager node to enter the correct configuration settings for the Driver and Equipment nodes.
3	Is the communication cable connected correctly?	Refer to the associated protocol manual for information about cable diagrams.
4	Is the problem resolved?	If none of the previous steps fixed the communication problem, then there is a problem with the hardware.

Unit does not respond when touched

If the unit is either not responding when touched or if its response time is very slow, perform the following check steps:.

Step	Check/Operation	Solution
1	Disconnect all the cables except the power cable.	-
2	In the **Settings** menu, touch the **Offline** tab and then touch the **Self Test** icon. Run the Touch Panel test.	If the test fails, there is a problem with the hardware.
3	Enter the **Settings** menu, touch the **System** tab and then touch the **Stylus** icon. Calibrate the analog touch.	If the touch calibration is not possible, there is a problem with the hardware.
4	If touch response is slow, does it happen on a specific panel?	If the panel displays the values of a large number of equipment variables, you may want to redesign the panel and separate the variables into different panels and download again.

Step	Check/Operation	Solution
5	If touch response is slow, the target's CPU may be very busy communicating with external equipment.	To resolve this problem, try each of the following in the Vijeo-Designer editor and download again. • If you are using serial communication, make sure the communication speed between the target and equipment is optimized. • In the equipment or scan group properties, reduce the Scan Rate to Slow. This will reduce the frequency of variable updates to 1000 ms. • If you use many equipment variables in application scripts, you may want to change the script to a panel script so that the variables are active only when the information is necessary. If none of the above works, then you may have to reduce the number of external variables in the project. If none of the proposed options work, contact your Schneider Electric Technical Support for other methods of optimizing your project.

Target beeps when powered ON

If the target beeps continually when you turn ON the power supply, then the system files on the unit have become corrupted.

To resolve this problem, go to the Vijeo-Designer Start menu and run Recovery on the target machine.

Cannot change the Date or Time

⚠ WARNING

BATTERY EXPLOSION

Do not attempt to replace the unit's battery. Incorrectly replacing the battery may result in a battery explosion next time it is used.
Contact a Schneider Electric representative for the nearest Schneider Electric support center.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

If you cannot change the date or time:

Problem	Solution
The date and time keeps reverting to a different date and time when you try to change the date or time. The lithium backup battery for the internal clock has probably run out of power.	• Run the unit continuously for 24 hours, (the battery needs 96 hours to be recharged fully). • Try to change the clock setting again.
If the error continues, the battery may need replacement.	Contact your local Schneider Electric distributor for service.

Note: The lifetime of the backup battery depends on the ambient temperature. The expected battery life is 10+ years when the unit ambient temperature is less than 25°C (77°F).

Self Test List

Introduction

The XBT GT and XBT GK units are equipped with a number of diagnostic features that can be used to check the systems and the interfaces for any problems.

Self Test

From the **Settings** menu, touch the **Offline** tab and then the **Self Test** icon. **Self Test** menu appears. See the Vijeo-Designer online help for information on accessing the **Offline** tab.

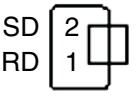
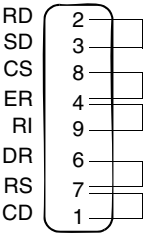
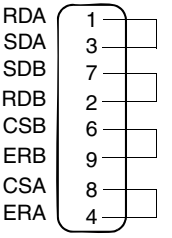
Self Tests

The following tests can be accessed from the **Self Test** menu.

Test	Description
Char. Pattern	Checks the characters in each font set available on the unit. Use this test when characters (usually 2-byte characters) do not display properly. **OK** appears if there is no error; **NG** appears if there is an error.
Disp. Pattern	Use this test when your drawings do not display properly.
Touch Panel	Tests the touch panel cells. Each cell highlights when it's pressed during the test.
COM 1	Checks to make sure the serial port (RS-232C and RS-485) is working properly. To run the check, you may need to connect a loopback cable (see below). **OK** appears if there is no error; an error message appears if there is an error.
COM 2	
Video Memory	Use this check to test the video memory (memory used for screen display). Run this test when the screen does not display properly. **OK** appears if there is no error; **NG** appears if there is an error.

Wiring for COM 1, COM 2 tests

When testing the serial port, depending on which port and which communication format you are testing, you may need to attach a loopback cable with wiring as defined below:

RS-232C	**RS-422**
XBT GT1000 in COM1 	Not available.
XBT GT2000 in COM1 	XBT GT2000 in COM1 
-	XBT GT2000 in COM2 Not available

Maintenance

7

At a Glance

Overview

This chapter explains how to maintain your XBT GT/GK.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
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Periodic Check Points	199
Replacing the Backlight	200

Regular Cleaning

Cleaning the display

When the surface or the frame of the display gets dirty, soak a soft cloth in water with a neutral detergent, wring the cloth tightly, and wipe the display.

Do not use hard or pointed objects to operate the touch-screen panel, since it can damage the panel surface.

Do not use paint thinner, organic solvents, or a strong acid compound to clean the unit.

Cleaning the Gasket

The gasket protects the unit and improves its water resistance.

Change the gasket at least once a year, or as soon as scratches or dirt become visible.

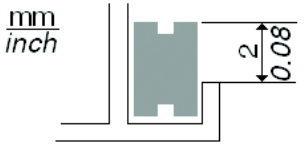
During normal maintenance and reinstallation, check the gasket for dirt and scratches.

Inserting the Gasket

The gasket must be inserted correctly into the groove to comply with IP65.

The upper surface of the gasket should protrude approximately 2 mm [0.08 inch] out from the groove. Verify that the gasket is correctly inserted before installing the unit into a panel.

Note: Be sure the gasket's seam is inserted into the straight bottom section of the groove. Inserting it into a corner may lead to eventual tearing.



Periodic Check Points

Operation Environment

- The operating temperature should be within the allowable range (0 °C to 50 °C) (32 °F to 122 °F).
- The operating humidity should be within the specified range (10 %RH to 90 %RH), dry bulb temperature of 39 °C (102 °F) or less.
- The operating atmosphere should be free of corrosive gases.

Electrical Specifications

The input voltage should be within 19.2 to 28.8 VDC.

Related Items

- Are all power cords and cables connected properly? Have any become loose?
- Are all mounting brackets holding the unit securely?
- Are there many scratches or traces of dirt on the installation gasket?

Replacing the Backlight

Introduction

The following maintenance applies only to the XBT GT5000/6000/7000 series units. There are no serviceable parts inside the XBT GT1000/2000/4000 and the XBT GK series.

The XBT GT5000/6000/7000 series units' backlight can be replaced by the customer. Please see the Instruction Sheet that comes with replacement backlights for details on how to replace the backlight. Contact your local distributor for more information.

If the unit's backlight burns out and the unit is not set to standby mode, the panel remains active.

⚠ WARNING

BACKLIGHT AREA IS HOT

Let the product cool down for 10 minutes before removing the backlight.
Wear gloves to touch the inner components.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

EXPOSED ELECTRICAL COMPONENTS

Remove power cords and disconnect all cables, including communication cables, before opening the product.
Do not open the product for any reason except backlight replacement.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION

BACKLIGHT IS FRAGILE

Do not touch the glass directly.
Do not try to remove the power cord.

Failure to follow these instructions can result in injury or equipment damage.

How to Determine if the Backlight is Burned Out

If your unit's backlight suddenly turns OFF, use the following steps to determine if the backlight is actually burned out:

- If the unit's Backlight Control is not set and the screen has gone blank, your backlight is burned out.
- If the unit's Backlight Control is set to standby mode, the screen has gone blank, and touching the screen or performing another input operation does not cause the display to reappear, your backlight is burned out.

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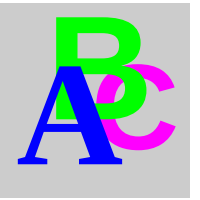

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